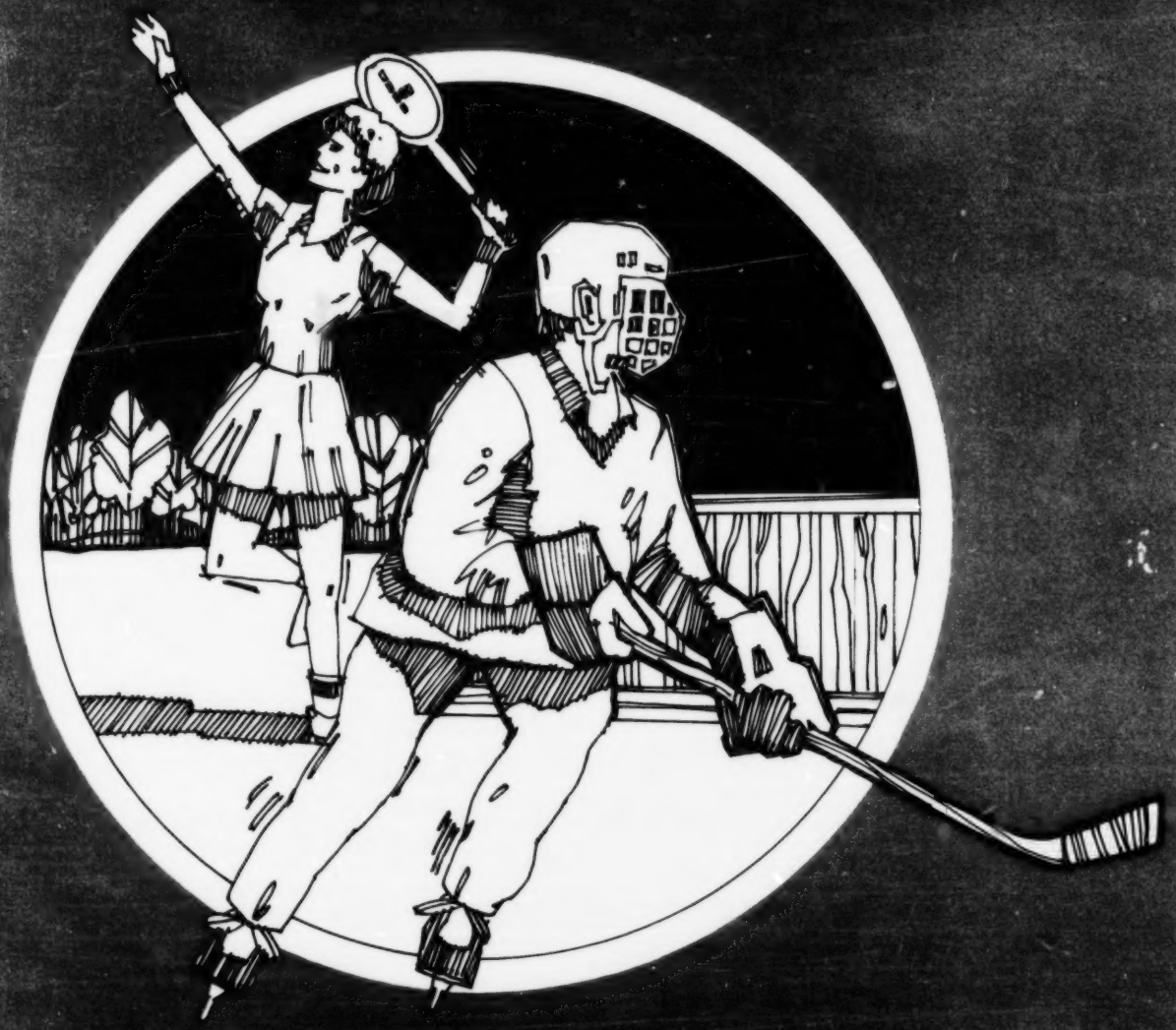
Tennis Courts/Outdoor Rinks



Alberta

RECREATION AND PARKS

Recreation Development Division

TENNIS COURT GUIDELINES

PREFACE

The intent of these guidelines is to provide Alberta communities with a basic amount of information with which they can proceed to plan their own tennis courts. If additional information is required or if questions arise from the information provided, further assistance is available from our consulting staff.

Contact your nearest Regional Recreation Consultant or forward your comments to:

Outdoor Facilities Section
Community Recreation Branch
Recreation Development Division
Alberta Recreation and Parks

Mailing Address:
8th Floor
Standard Life Centre
10405 - Jasper Avenue
Edmonton, Alberta
T5J 3N4

Office Address:
9th Floor
Standard Life Centre
10405 - Jasper Avenue
Edmonton, Alberta

Phone:

427-4471

INTRODUCTION

The sport of tennis has experienced a dramatic increase in popularity in recent years, with many of the reasons being obvious. Tennis offers the opportunity for people of all ages to enjoy the sport without regard for ability. Yet it offers the potential for those serious players to continually increase their level of skill over years and years of play.

An equally important reason for tennis' popularity is that the sport is relatively inexpensive to play, which makes it an ideal family activity. For the participant, the equipment requirements are minimal. For the community, the construction and operational costs make a tennis court one of the most economical recreational facilities that can be developed. This is especially true when one compares the costs to the large number of players that will use the court.

In order to help minimize the cost of the tennis courts over time, it is important that the courts be designed and constructed properly at the outset. It is hoped these guidelines will assist communities in reaching that objective.

A. SITE SELECTION

Tennis courts are considered to be a neighbourhood level facility, which suggests that opportunities to play tennis should exist within approximately 1 km of most homes in the community. However, as this is merely a guideline, the exact number and location of tennis courts in a community should be based on local needs and conditions.

Generally, the site to select is one that is reasonably level and does not lie low in relation to adjacent land, otherwise, special provisions for drainage may be necessary. If there is uncertainty about the stability of the site selected, someone familiar with soils and construction methods should be consulted. It is also desirable to have a site sheltered from prevailing winds and with a dark background. However, trees too near a court may also cast a shadow or drop leaves on the court.

Other factors to consider when selecting the most appropriate site for tennis courts include:

- pedestrian and vehicular access to the site.
- proximity to related facilities, such as schools, changerooms, and other recreation facilities.
- proximity to utilities, if drinking fountains and lighting are to be provided.

B. ORIENTATION

It is quite important that tennis courts be situated so that the direction of play, i.e., the long axis of the court, is running 90° to the late evening sun to minimize visual interference. Therefore, courts usually run north-south.

C. COURT DIMENSIONS

The regulation dimension for a standard "doubles" court is 23.77 m x 10.97 m (78' x 36'). But in order to allow play of the ball behind and beside the lines, additional space must be provided, as follows:

recommended:	3.66 m (12') between side of court and fence
	3.66 m (12') between courts
	6.40 m (21') at ends of court
minimum:	2.74 m (9') between side of court and fence
	2.74 m (9') between courts
	4.87 m (16') at ends of court

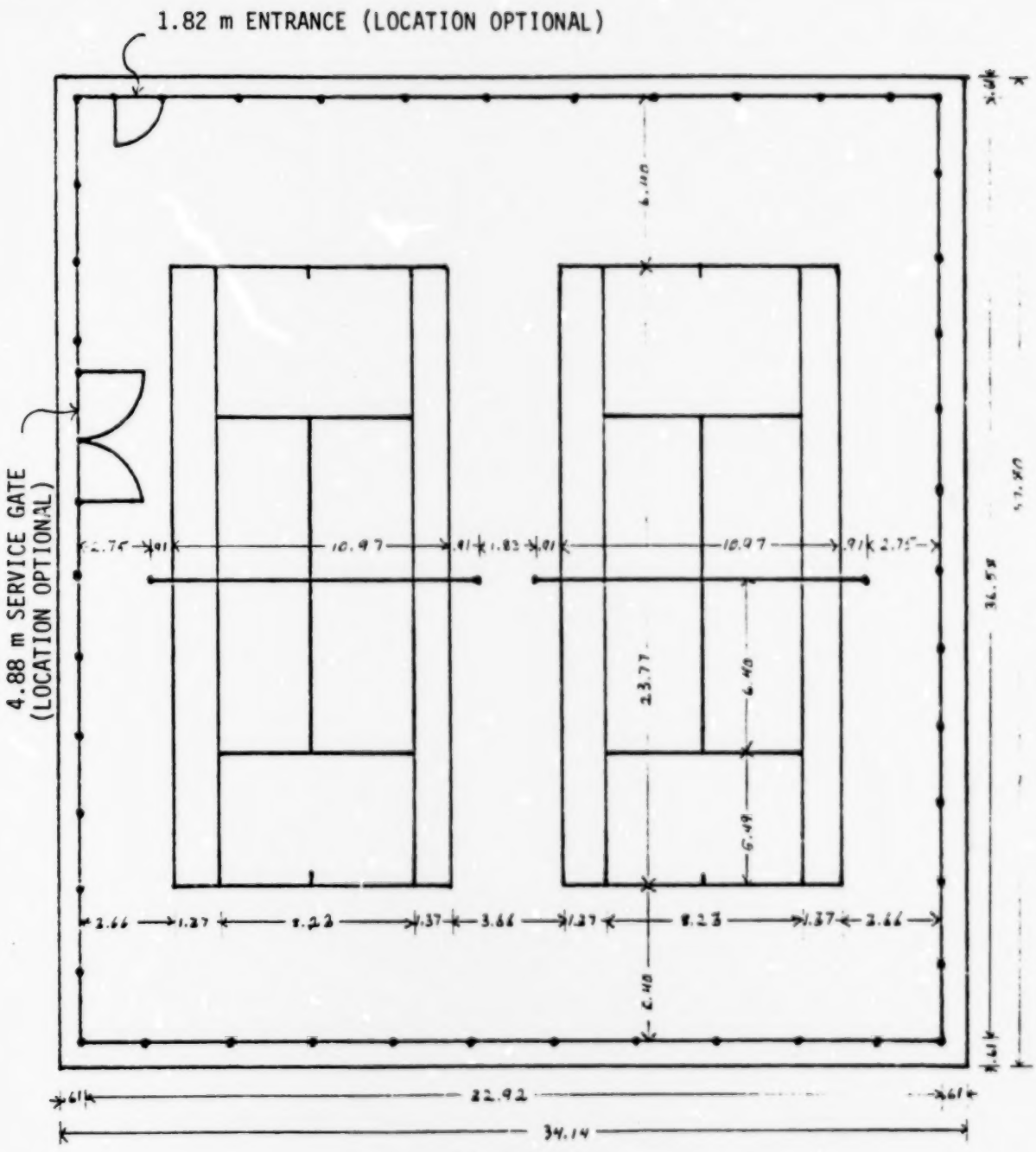
These dimensions refer to the area within the fenceline. It is optional, but recommended for maintenance reasons, that the asphalt surfacing extend a minimum of 0.3 - 0.6 m (1 - 2') beyond the fenceline. This additional amount of asphalt will ensure that fence posts are well anchored, that water drains completely off the playing surface, and that weeds and grass growing up at the edge of the asphalt are easier to mow.

D. TYPES OF COURT SURFACES

In Alberta, when one combines the availability and cost factors of various surfaces with their maintenance factors, an asphalt surface will usually prove to be more economical and serviceable in the long run. As a result, asphalt is the most common surfacing for tennis courts in Alberta.

Concrete is an alternative surface and although there are few outdoor concrete tennis courts, many communities are now using the concrete surface in their arenas for summer tennis. Lighting is sometimes inadequate and the concrete provides for faster play, but this is an economical method of providing tennis in the community. (Fast court:

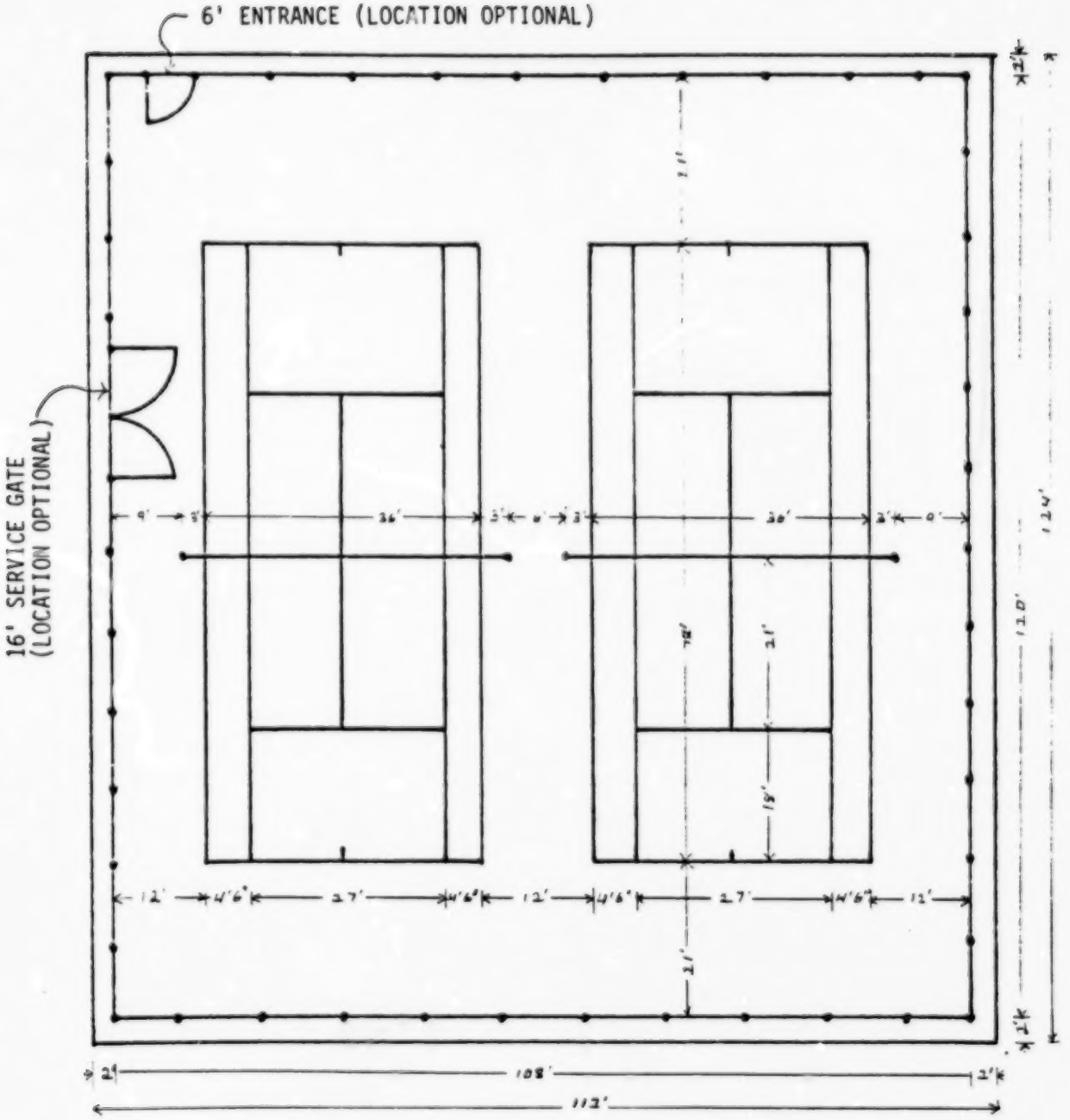
Diagram 1A



2 COURT LAYOUT

RECOMMENDED DIMENSIONS IN METRES

Diagram 1B



2 COURT LAYOUT

RECOMMENDED DIMENSIONS IN IMPERIAL MEASURES

one in which a moderately hard hit ball tends to have a long skid and low bounce and on which a ball with spin is not greatly diverted.)

There is a possibility of providing economical concrete tennis courts wherever an unused concrete surface exists, such as the tops of water reservoirs or commercial parking garages.

Shale courts are also used in Alberta and their initial cost is much less than most surfaces. However, the fact that these courts require constant maintenance must be taken into consideration, as well as the facts that they provide very different playing conditions and cannot be played on immediately after a rain shower.

E. CONSTRUCTION

Due to the popularity of asphalt court surfaces, the construction methods described herein relate primarily to that type of surface. However, if requested, construction information is available for other types of surfaces, such as shale, concrete or penetration macadam.

A word of caution at this point would be that construction methods may vary with soil and site conditions. Although the following methods are fairly common throughout Alberta, someone familiar with local soil conditions and construction methods should be consulted before proceeding with construction.

1. Subgrade

Initially, a soil test is recommended to determine the depth of the organic matter and solid clay base. All topsoil and organic matter must be removed and the site excavated down to solid clay bearings, or further, if the required grade level has not yet been reached. If the excavation has gone beyond the required grade level, fill material is necessary. At this point, the grade must be sloped in

accordance with the appropriate drainage pattern (see section on drainage). This rough grade is then compacted to 100% Proctor Density.

If there is considerable vegetation growth in the area, the excavated site can be treated with soil sterilizer - either the entire excavation or just the first .6m - 1m (2 - 3') along the perimeter. This ensures there will be no future vegetation growth under and through the playing surface.

2. Curb Wall

This is an optional edging around the entire perimeter of the court area, consisting of well staked, pressure treated 38mm X 104mm (2 x 6's) or 38mm X 184mm (2 x 8's). It's primary function is to provide a good clean edge to the asphalt and to help prevent vegetation from growing under the court. However, it is difficult to install and does add to the expense of the courts. For these reasons, curbing is often deleted from a project.

3. Gravel Base Course

This step usually consists of placing 15.24cm of 1.90cm (6" of 3/4") crushed gravel and compacting it to 100% Proctor Density. The slope achieved in the subgrade is maintained in the base course preparation.

The proper preparation of the subgrade and the base course is considered by many to be the key to building a long lasting tennis court. Poor construction at these stages may result in severe heaving and cracking of the surface, which will be very difficult to correct.

4. Cement Stabilized Course

When poor soil conditions dictate a more stable base, a cement and gravel or a cement and sand mixture is placed down at this stage. Whether this step is necessary or not should be determined by knowledgable people familiar with local soil conditions. As this step could be very expensive if the proper equipment was not readily available, a better suited location could become more economical.

5. Prime Coats

A prime coat for tennis court construction is considered by some to be optional. It consists of the application of a tar-like mixture which ensures a good bond between the base course and the surface course.

6. Surface Course

This step usually consists of the placement of 5cm (2") of 1.27cm (1/2") asphaltic hot plant mix pavement (asphaltic concrete). This layer is then compacted.

Some communities will lay two layers of asphalt, with the first layer being 3.8cm - 5cm (1 1/2" - 2") of 1.90cm (3/4") asphalt and the second layer being 1.27cm - 2.5cm (1/2" - 1") of .95cm (3/8") asphalt. This procedure provides a smoother playing surface, but will again increase the cost of the courts.

7. Surface Seal

This step again is an optional one, depending upon the porousness of the asphalt surface. A porous surface should be sealed off with either a sand/tar mixture or a similar mixture commercially produced.

8. Color Surface Coats

A variety of color surface coats are available commercially. They will help to cover minor imperfections in the asphalt surface, but the most significant result of their application is the attractiveness of their colors. These surface coats are often quite expensive and therefore are often omitted from the project.

9. Drainage

Each courts should drain from side to side or from end to end but should never drain from, or to, the net. This, in effect, would raise or lower the net in relation to the rest of the court. Generally, the court(s) should have one of the following three patterns with the guidelines being to have the shortest drainage distance as possible and the direction of drainage to conform with the overall slope of the surrounding area.

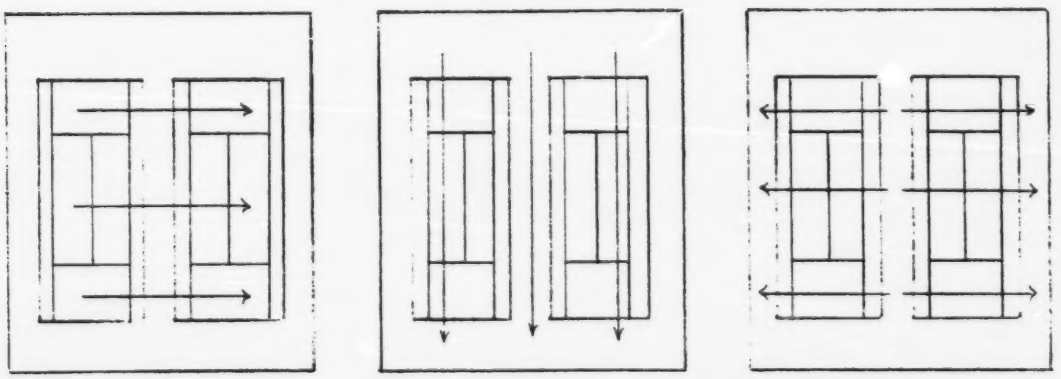
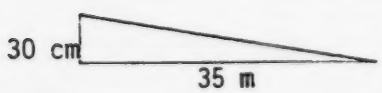
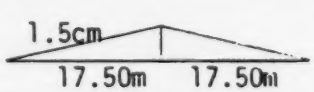


DIAGRAM 2





The slope for an asphalt court should be .8% or 2.54cm (1") of drop for every 3m (10') of distance.

Providing for drainage beyond the courts should involve installing weeping tile around the perimeter of the court. This weeping tile is then connected to storm sewers, or to gravel filled trenches similar to septic field systems. In low, wet sites this procedure is essential, as wet soils will often cause the playing surface to heave and crack during the winter. However, many communities that have well drained sites often omit any drainage system beyond the courts.

F. FENCING AND NETS

The normal height of fencing around tennis courts is 3.05 m (10'). However, when funds allow or when high amounts of vehicular traffic around the site dictate, 3.68 m (12') high fencing may be used. This higher fencing will result in the players having fewer balls to chase, thus making the game more enjoyable. The usual specification is for a galvanized chainlink fencing with a guage of 11 and a mesh of 4.45cm (1 3/4"). However, some communities find that 11 guage fencing does not stand up to abuse such as fence climbing. To overcome this problem some communities install a 9 guage wire while other communities obtain an 11 guage vinyl coated wire, both of which are more durable. A 1.82m (6') main entrance gate and a 4.88m (16') service gate are essential, but their location can be varied to suit the site.

Fencing is installed after the asphalt is laid by simply drilling holes through the asphalt where required.

Nets for tennis courts are made of cloth, nylon or steel mesh. The steel mesh nets are popular due to the fact that they are much more durable and resistant to vandalism. However, steel mesh nets are seldom used for tournament play due to the way balls bounce off the net.

The net posts are installed 0.91 m (3') outside the court and at a height such that the net is 1.07 m (3'6") high at both ends. The centre of the net is anchored down such that its height is 0.914 m (3') in the middle of the court.

G. LIGHTING

With Daylight Saving Time in Alberta, lighting of tennis courts for evening play may be considered unnecessary, especially in the more northern parts of the province. However, if courts are to double as a winter skating/hockey rinks, lights should be considered more seriously.

The following lighting levels are recommended for outdoor tennis courts:

Tournament play	30 footcandles
Club play	20 footcandles
Recreational play	10 footcandles

These levels are fairly consistent with the lighting levels recommended for outdoor hockey:

College/Professional play	50 footcandles
Amateur play	20 footcandles
Recreational play	10 footcandles

If lighting is to be provided, it must be remembered to plan the appropriate layout and to install the necessary underground wiring before asphalt placement.

H. LAYING OUT THE COURT

First mark the centre point of the net posts 12.8m (42) feet apart. Measure 2.28m (7 1/2') in from these points on both sides and mark points A & B (see

diagram 3). Using two tape measures, extend one from point A 11.89m (39'), the other point B 14.51m (47' 5 1/4"). Where the two tape measures meet, mark point C. Point D is found in a similar fashion. Check to make sure points C and D are 8.2m (27) feet apart. This operation provides the basic points for one side of the court. Repeating the operation will provide the basic points for the other side of the court. From there, the location of the remaining lines can be determined from diagrams 1 and 3.

Note that all measurements mark the outside edge of the court.

I. MARKINGS

Following are the widths for playing lines as recommended by the Canada Games Council. However, line widths of 5 cm (2") are often used for all lines.

Sidelines	5 cm (2") in width
Service lines	2.5 cm - 5 cm (1 - 2") in width
Centre Service line	5 cm (2") in width
Base lines	10 cm (4") in width
Centre mark	10 cm (4") in length x 5 cm (2") in width

All lines, when painted, fall inside the measurements of the court. White traffic marking paint used on most paved streets is acceptable for painting on the lines. Marking paint especially designed for painting lines on surfaces such as tennis courts is also available commercially.

J. COST CONSIDERATIONS

It is virtually impossible to provide a single cost estimate or costing example for tennis courts which will be relevant to all communities in Alberta.

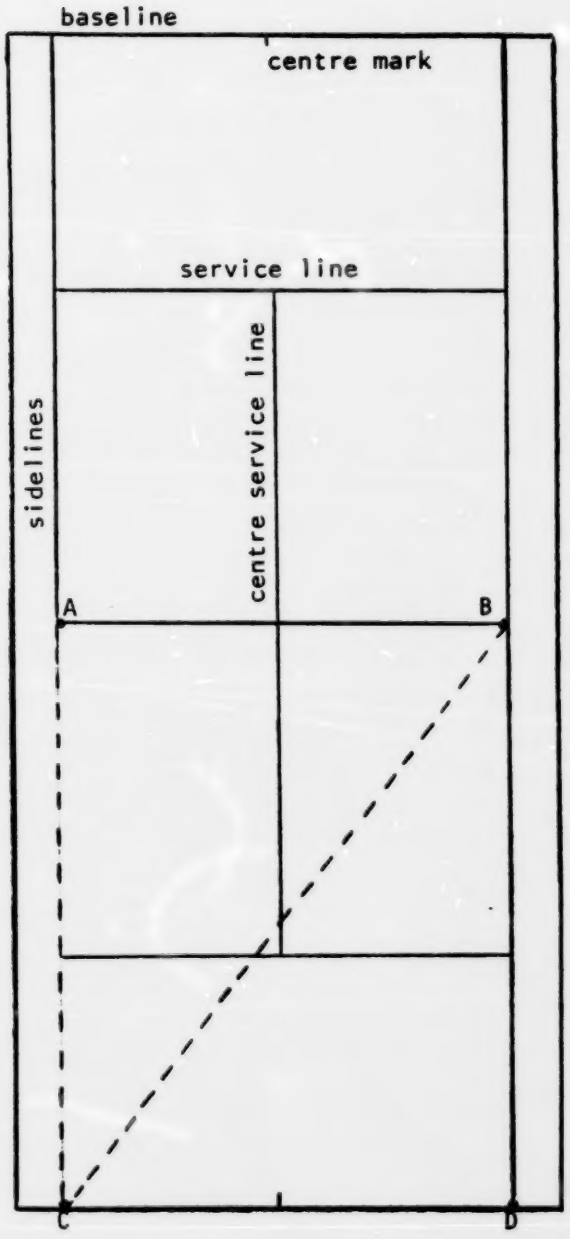

baseline
centre mark
service line
centre service line
sidelines
A
B
C
D

DIAGRAM 3

Some recent projects (1981 - 1982) have experienced costs in the range of $20-25,000 per court. This range normally provides for only the supply and construction/installation of the base, surface layer, and fencing. These cost variations are due to one or more of the following factors:

- variation in the construction specifications

- soil conditions which require additional base construction costs and/or the installation of an underground drainage system

- proximity and availability of the contractors. If asphalt contractors are already working in the area, a considerable savings could be realized by constructing tennis courts at the same time. On the other hand, if contractors are already quite busy, one may have to pay a premium to have tennis courts installed.

- the amount of work done by volunteers or municipal staff and equipment.

As a result, this cost estimate should only be regarded as a preliminary indication. An accurate cost estimate must be based upon local conditions.

K. MULTIPLE USE OF TENNIS COURTS

It is quite common for tennis courts to be used as a site for hockey rinks or skating rinks in the winter. For a full sized hockey rink, a battery of four tennis courts is necessary to provide adequate space.

The benefits of making use of tennis courts for winter hockey and skating are:

- the asphalt surface allows faster ice making than dirt or sand surfaces as it does not absorb the water.

- where lighting is installed, the lights can be used year round.

- where available space is minimal, these two sports can be combined to make efficient use of the land.

- change rooms and parking lots can be provided to serve both functions.

However, there are also some disadvantages of combining the two activity areas:

- the dark asphalt surface tends to absorb the sun's heat and makes the ice soft on warm days. This can be partially overcome if an inch or two of snow cover is on the tennis courts before ice is made.

- the rink boards must be assembled and disassembled yearly.

- the sloping surface necessary for drainage of the tennis courts makes ice making somewhat more difficult. Water must be sprayed on in thin layers rather than flooded.

- some courts have experienced premature deterioration of the asphalt surface due to the freeze-thaw action of the ice. This has necessitated resurfacing approximately every five years. However, other communities are reporting that no such difficulties are occuring with their courts.

- caution must be taken that sufficient ice is covering the asphalt surface so that skate blades do not break through and damage the surface. This is especially important when color coatings have been used on the tennis courts. A cut in this coating may cause it to lift off the surface, necessitating its replacement.

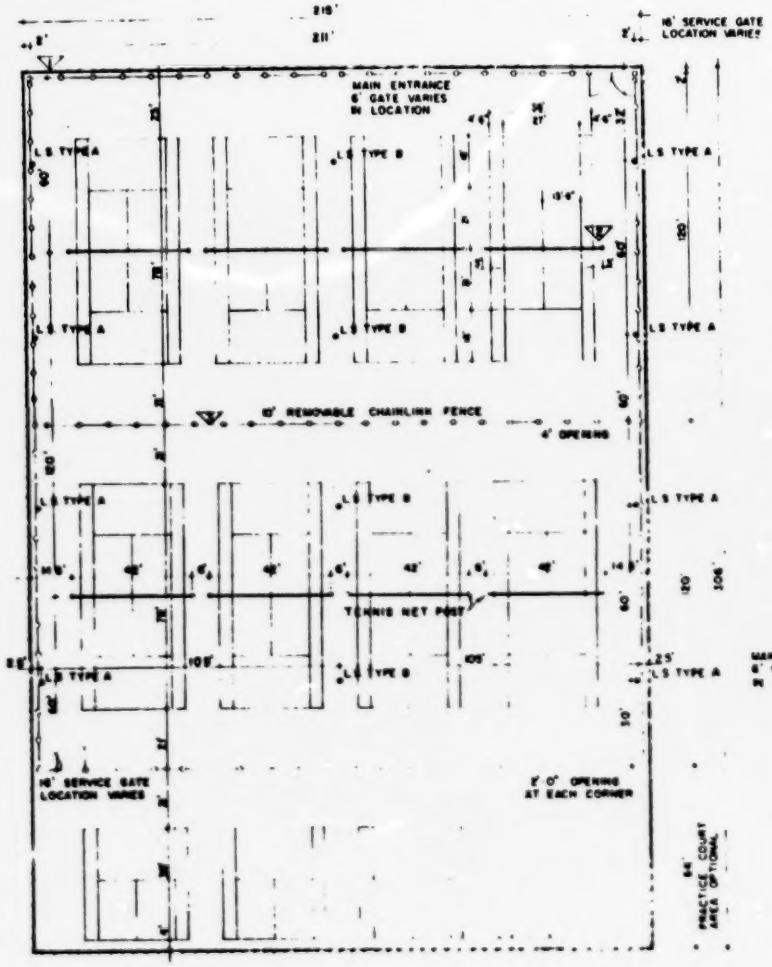
Where multiple use of the courts is anticipated, ensure that the net posts are installed with ground sockets so that the posts can be removed and the sockets capped.

APPENDIX A:
SPECIFICATION DRAWINGS

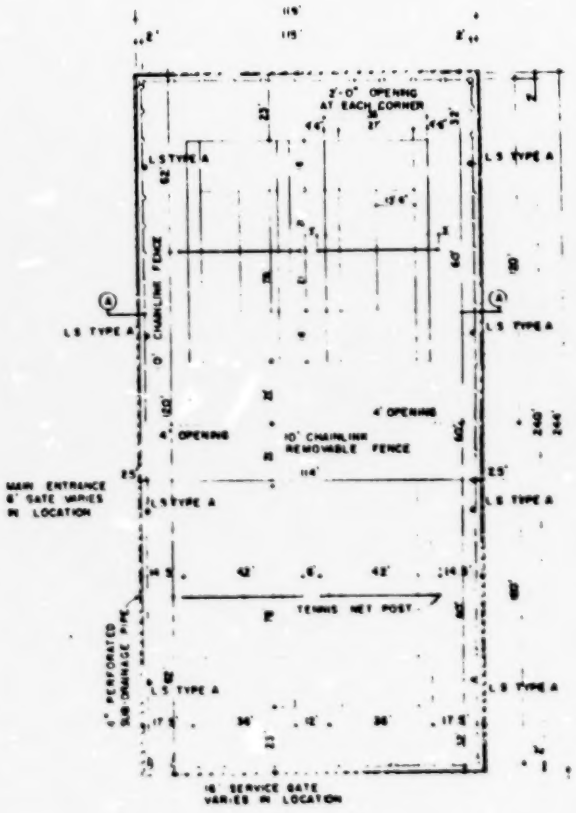
NOTE: Many of these drawings are available in their original scale, as well as in the metric scale. Please contact Alberta Recreation and Parks if you require copies of these drawings.

ACKNOWLEDGEMENT

Original drawing prepared by the City of Edmonton Parks and Recreation Department or City of Calgary Parks and Recreation Department which kindly permitted the Department of Recreation and Parks to reproduce and distribute this drawing.



8 COURT LAYOUT



4 COURT LAYOUT

LEGEND

NOTES

INCANDESCENT LIGHTING

FLOODLIGHTS TO BE 1500 W PYLE-NATIONAL SERIES 4000 SPORTSLIGHTER NEMA TYPE 5 DISTRIBUTION OR APPROVED EQUAL MOUNTED 25' ABOVE THE FINISHED SURFACE OF THE TENNIS COURTS

LIGHT STANDARDS TO BE PAINTED AS FOLLOWS

1- PRIMER COAT 08-116 RED LEAD/ZINC CHROMATE PRIMER BY GENERAL PAINT OR EQUAL

1- UNDERCOAT 32-001 MONAMEL OUTSIDE ALKYD PRIMER OR EQUAL

1- FINISH COAT ASA 70- SKY GREY

METAL HALIDE LIGHTING

FLOODLIGHTS TO BE 1000W METAL HALIDE CROUSE-HINDS GALR-1000M2 (MUST MAINTAIN 30 FOOT CANDLES) OR APPROVED EQUAL MOUNTED 30' ABOVE THE FINISHED SURFACE OF THE TENNIS COURTS

LIGHT STANDARDS

TYPE A - 30' OCTAGONAL STEEL CROUSE-HINDS WL 9732-1 OR APPROVED EQUAL

TYPE B - 30' OCTAGONAL STEEL CROUSE-HINDS WL 9732-2 OR APPROVED EQUAL

LIGHT STANDARDS TO BE PAINTED AS FOLLOWS

1- PRIMER COAT 08-116 RED LEAD/ZINC CHROMATE PRIMER BY GENERAL PAINT OR EQUAL

1- UNDERCOAT 32-001 MONAMEL OUTSIDE ALKYD PRIMER OR EQUAL

1- FINISH COAT ASA 70 - SKY GREY

SERVICE GATES

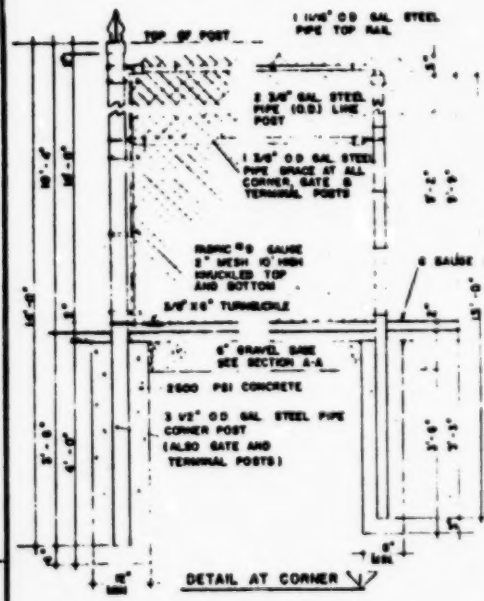
IF ONLY 1 SERVICE GATE IS INSTALLED IN OUTER FENCE, A SERVICE GATE WITH A MINIMUM OPENING OF 11' MUST BE INSTALLED IN THE CENTRE CHAINLINK REMOVABLE FENCE

MAY 31/73 - GENERAL LIGHTING REVISIONS - PWD
MARCH 12/74, ADDED NOTES A.J.B
JULY 10/75 - DIMENSION CORRECTED - GHB
REVISIONS
DATE SEPTEMBER 1972 SCALE 1" = 20' GHB

EDMONTON PARKS & RECREATION

TENNIS COURTS

SD


1 1/16" OD GAL STEEL PIPE TOP RAIL
TOP OF POST
2 3/8" GAL STEEL PIPE (O.D.) LINE POST
1 5/8" OD GAL STEEL PIPE BRACE AT ALL CORNER, GATE & TERMINAL POSTS
FABRIC #9 GAUGE 2" MESH 10' HIGH KNUCKLED TOP AND BOTTOM
6 GAUGE BOTTOM WIRE
5/8" X 6" TURNBUCKLE
6" GRAVEL BASE SEE SECTION A-A
2500 PSI CONCRETE
3 1/2" OD GAL STEEL PIPE CORNER POST (ALSO GATE AND TERMINAL POSTS)
12" MIN

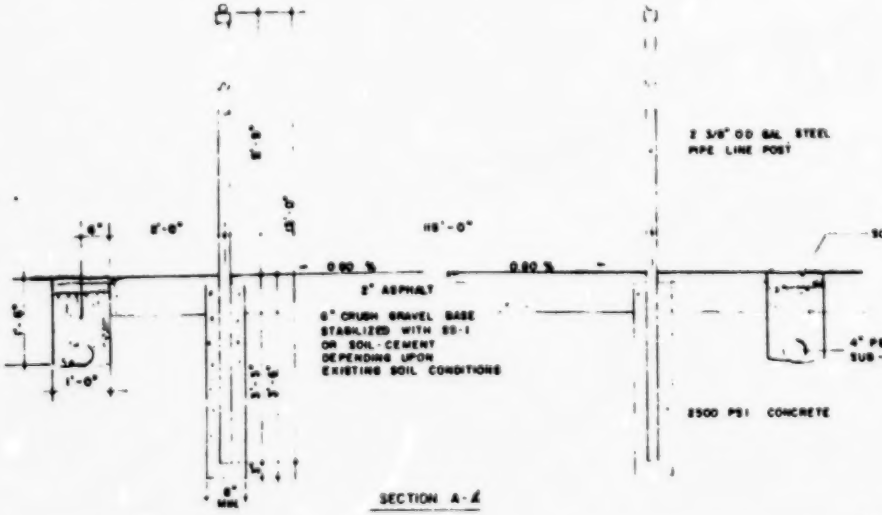
DETAIL AT CORNER

3 1/2" OD GAL STEEL PIPE BOTTOM 6" THREADED OUTSIDE TO FIT 4" O D E H GAL STEEL SLEEVE THREADED ON SLEEVE
5/8" TURNBUCKLE
4" O D E H GALV STEEL SLEEVE TOP 6" THREADED ON INSIDE TO RECEIVE THREADED 3 1/2" GAL STEEL POST
SLEEVES TO BE PROVIDED WITH 3 1/2" OD PLUGS 1" DEEP THREADED FULL LENGTH FOR USE WHEN TENNIS NET POSTS ARE REMOVED PLUGS TO BE FLUSH WITH ASPHALT
3" ASPHALT SURFACE
2500 PSI CONCRETE
8" X 8" X 1/4" PLATE
12" MIN

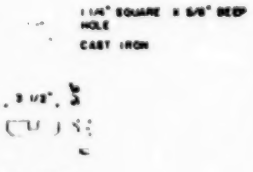
NET POST DETAIL 2

2 3/8" OD GAL STEEL PIPE LINE POST BOTTOM 6" THREADED OUTSIDE TO FIT 2 7/8" OD GAL STEEL SLEEVE THREADED ON INSIDE
2 7/8" O D E H GAL STEEL SLEEVE TOP 6" THREADED ON INSIDE TO RECEIVE THREADED 2 3/8" O D GAL STEEL POSTS
SLEEVES TO BE PROVIDED WITH 2 3/8" OD PLUGS 1" DEEP THREADED FULL LENGTH FOR USE WHEN FENCE POSTS ARE REMOVED PLUGS TO BE FLUSH WITH ASPHALT
2500 PSI CONCRETE
4" X 4" X 1/4" PLATE

REMOVABLE FENCE DETAIL 3


2 3/8" OD GAL STEEL PIPE LINE POST
6"
5'-0"
115'-0"
0.80 %
0.80 %
2" ASPHALT
6" CRUSH GRAVEL BASE STABILIZED WITH SS-1 OR SOIL-CEMENT DEPENDING UPON EXISTING SOIL CONDITIONS
1'-0"
2" - POROUS MIXTURE OF TOP SOIL & COURSE SAND WASHED GRAVEL
4" PERFORATED SUB-DRAINAGE PIPE
2500 PSI CONCRETE
6"

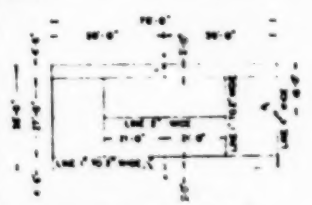
SECTION A-A



PLUG DETAIL
SCALE- 1/4 FS

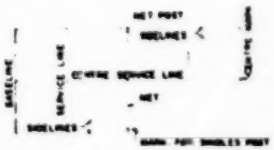
LEGEND

NOTES



NOTE NET HEIGHT AT POSTS SHALL BE 3' 0" HIGH
NET HEIGHT AT CENTRE SHALL BE 3' 0" HIGH
WHITE NET BAND 2" TO 2 1/2" WIDE

NOTE ALL MEASUREMENTS SHALL BE MADE TO THE OUTSIDE OF THE LINES



TENNIS COURT LINE MARKINGS
SCALE 1"=10'

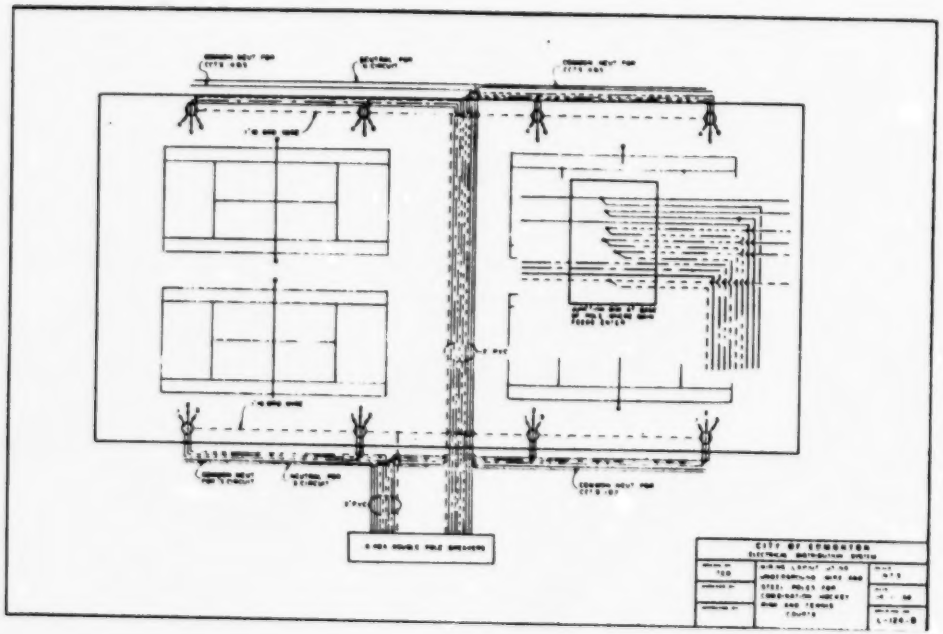
MAY 20/76 - LINE MARKINGS ADDED - TWO
OCT 20/76 - REVISED NET POST DETAIL - D R C
JULY 6/77 - REVISE DRAINAGE DETAIL AT EDGE OF COURT - D R C

REVISIONS
DATE SEPTEMBER 1976 SCALE 1"= 1'-0" (UNO)

EDMONTON PARKS & RECREATION

TENNIS COURTS

SD
211-A



LEGEND

NOTES

BEFORE PRINTING CHECK FOR REVISIONS WITH EDM POWER

FLOODLIGHTS TO BE 1500 W PYLE NATIONAL SERIES 4000 SPORTSLIGHTER NEMA TYPE 5 DISTRIBUTION OR APPROVED EQUAL MOUNTED 25' ABOVE THE FINISHED SURFACE OF THE TENNIS COURTS (24 FLOODLIGHTS REQUIRED)

LIGHT STANDARDS TO BE PAINTED AS FOLLOWS

1- PRIMER COAT 04-118 RED LEAD/ZINC CHROMATE PRIMER BY GENERAL PAINT OR EQUAL

1- UNDERCOAT 32-001 MONAMEL OUTSIDE ALKYD PRIMER OR EQUAL

1- FINISH COAT ASA 70- SKY GREY

MARCH 11, 1974 ADD NOTES AJB

REVISIONS

DATE SCALE

EDMONTON PARKS & RECREATION

COMBINATION

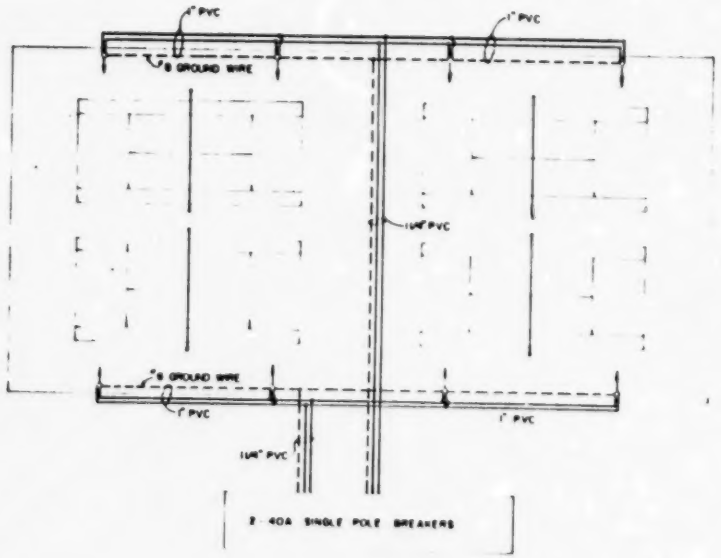
HOCKEY RINK AND TENNIS COURTS

WIRING LAYOUT-UNDERGROUND WIRE & STEELPOLES

(INCANDESCENT LIGHTING)

SD

218



LEGEND

- BUMPER RAIL
- PROPERTY LINE
- SEWER LINE
- WATER LINE
- GAS LINE
- IRRIGATION
- OVERHEAD POWER
- UNDERGROUND POWER
- SUB DRAINAGE
- CHAIN LINK FENCE
- WOOD FENCE

- TRANSFORMER
- HYDRANT
- METER CHAMBER
- CUBICLE
- SECURITY LIGHT

NOTES

BEFORE PRINTING CHECK FOR REVISIONS WITH ELECTRICAL DEPT PARKS AND RECREATION

FLOODLIGHTS TO BE 1000 W METAL HALIDE CROUSE - HINDS GALR - 1000MP2 BALST MAINTAIN 20 FOOT CANDLE) OR APPROVED EQUAL MOUNTED 30' ABOVE THE FINISHED SURFACE OF THE TENNIS COURTS (8 FLOODLIGHTS REQUIRED FOR 4 COURTS - 16 FLOODLIGHTS REQUIRED FOR 8 COURTS)

LIGHT STANDARDS - 30' OCTAGONAL STEEL CROUSE - HINDS ML 9732 - 1 FOR 1 LIGHT AND ML 9732 - 2 FOR 2 LIGHTS OR APPROVED EQUAL

LIGHT STANDARDS TO BE PAINTED AS FOLLOWS

1 - PRIMER CONF 08 - 146 RED LEAD/ZINC CHROMATE PRIMER BY GENERAL PAINT OR EQUAL

1 - UNDERCOAT 32 - 001 MONAMEL OUTSIDE ALKYD PRIMER OR EQUAL

1 - FINISH COAT 454 70 - SKY GREY

Revisions CH

Edmonton Parks and Recreation

COMBINATION HOCKEY RINK AND TENNIS COURTS

WIRING LAYOUT - UNDERGROUND WIRE AND STEEL POLES (METAL HALIDE LIGHTING)

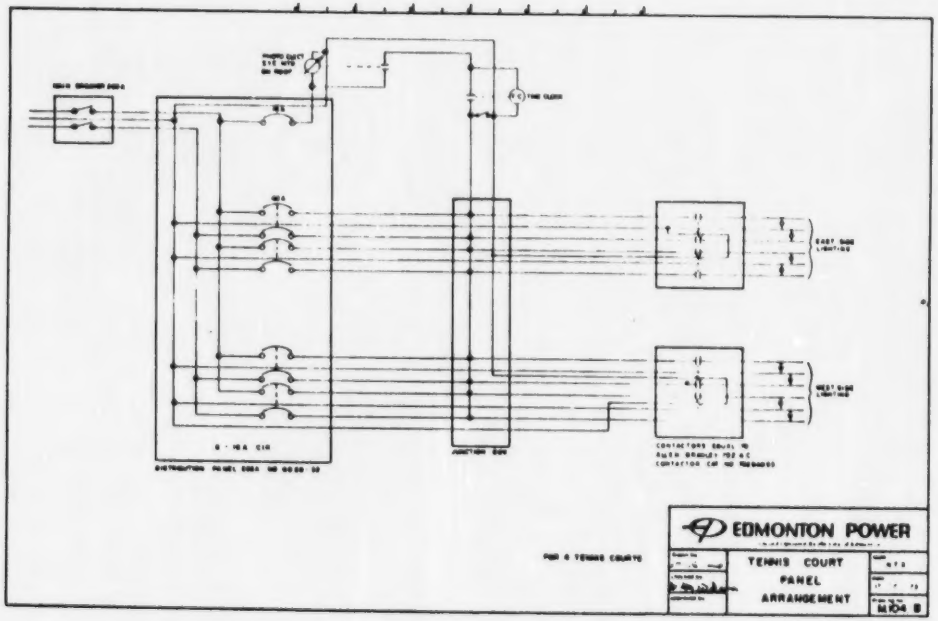
Drawn	Head of Design
P. DYRUK	
Design	Director
Checked	Superintendent

Date APRIL 26/76

Drawing No. SD

Scale NOT TO SCALE 210 A

File No.



LEGEND:

BUMPER RAIL		
PROPERTY LINE		
SEWER LINES		
WATER LINES		
GAS LINES		
IRRIGATION		
OVERHEAD POWER		
UNDERGROUND POWER		
SUB-DRAINAGE		
CHAINLINK FENCE		
WOOD FENCE		
POWER POLE		TRANSFORMER
CATCH BASIN	C B	HYDRANT
MANHOLE	M H	METER CHAMBER
WATER VALVE	W V	CURBS

NOTES.

REVISIONS

DATE JULY 1973 SCALE N T S [CHG]

EDMONTON PARKS & RECREATION

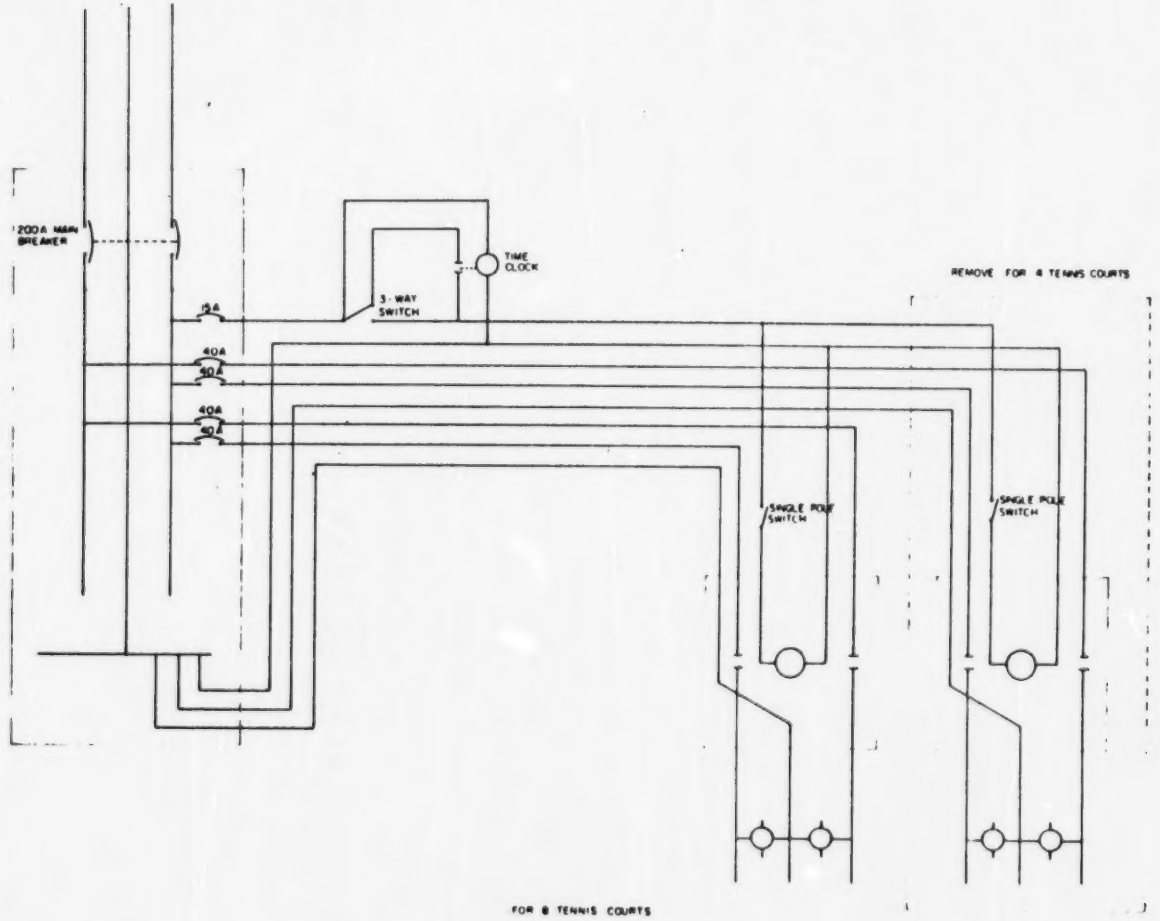
(INCANDESCENT LIGHTING)

TENNIS COURTS

ELECTRICAL PANEL ARRANGEMENT

SD

210



LEGEND

- BUMPER RAIL
- PROPERTY LINE
- SEWER LINE
- WATER LINE
- GAS LINE
- IRRIGATION
- OVERHEAD POWER
- UNDERGROUND POWER
- SUB DRAINAGE
- CHAIN LINK FENCE
- WOOD FENCE

- TRANSFORMER
- HYDRANT
- METER CHAMBER
- CUBICLE
- SECURITY LIGHT

NOTES

Revisions CK

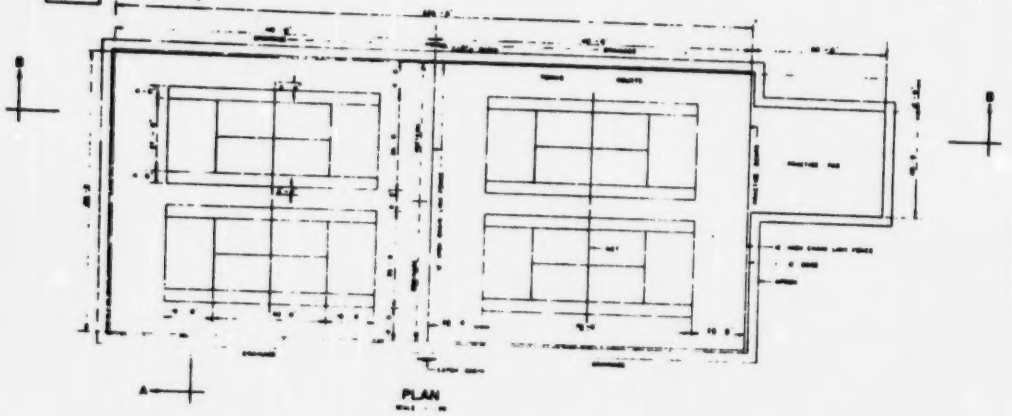
Edmonton Parks and Recreation

TENNIS COURTS

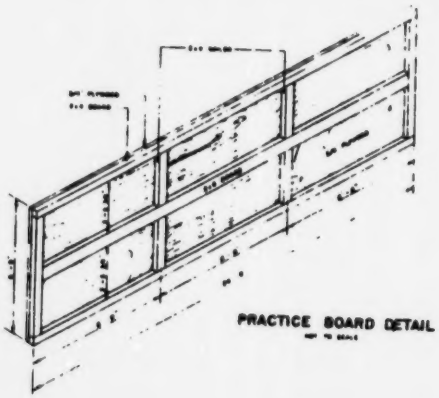
ELECTRICAL PANEL ARRANGEMENT (METAL HALIDE LIGHTING)

Drawn P DYTIUK	Head of Design
Design	Director
Checked	Superintendent

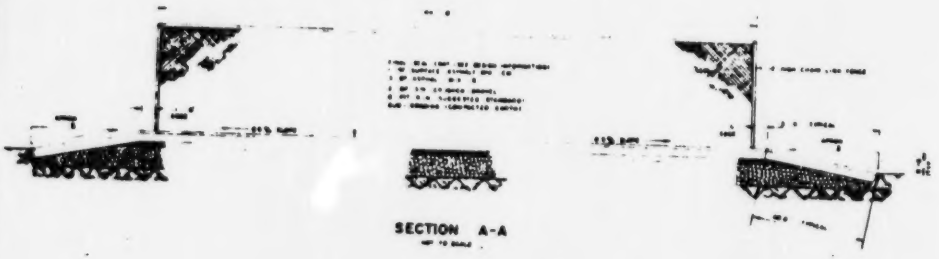
Date APRIL 26/78	Drawing No. SD 219 A
Scale NOT TO SCALE	File No.



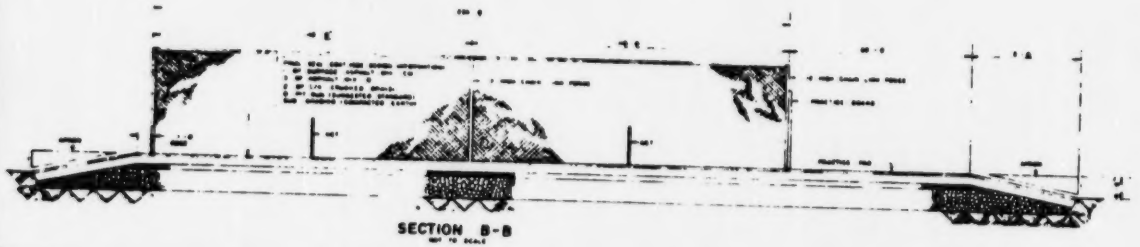
PLAN



PRACTICE BOARD DETAIL



SECTION A-A



SECTION B-B

THE CITY OF CALGARY
parks / recreation department

DATE	REVISIONS	APPROVED
DEC 12/77	REVISE PRACTICE BOARD DETAIL	M K

STAMP

TITLE
STANDARD TENNIS COURT DETAILS

SHEET
1

DESIGNED _____ CHECKED J.C. FENCER APPROVED _____

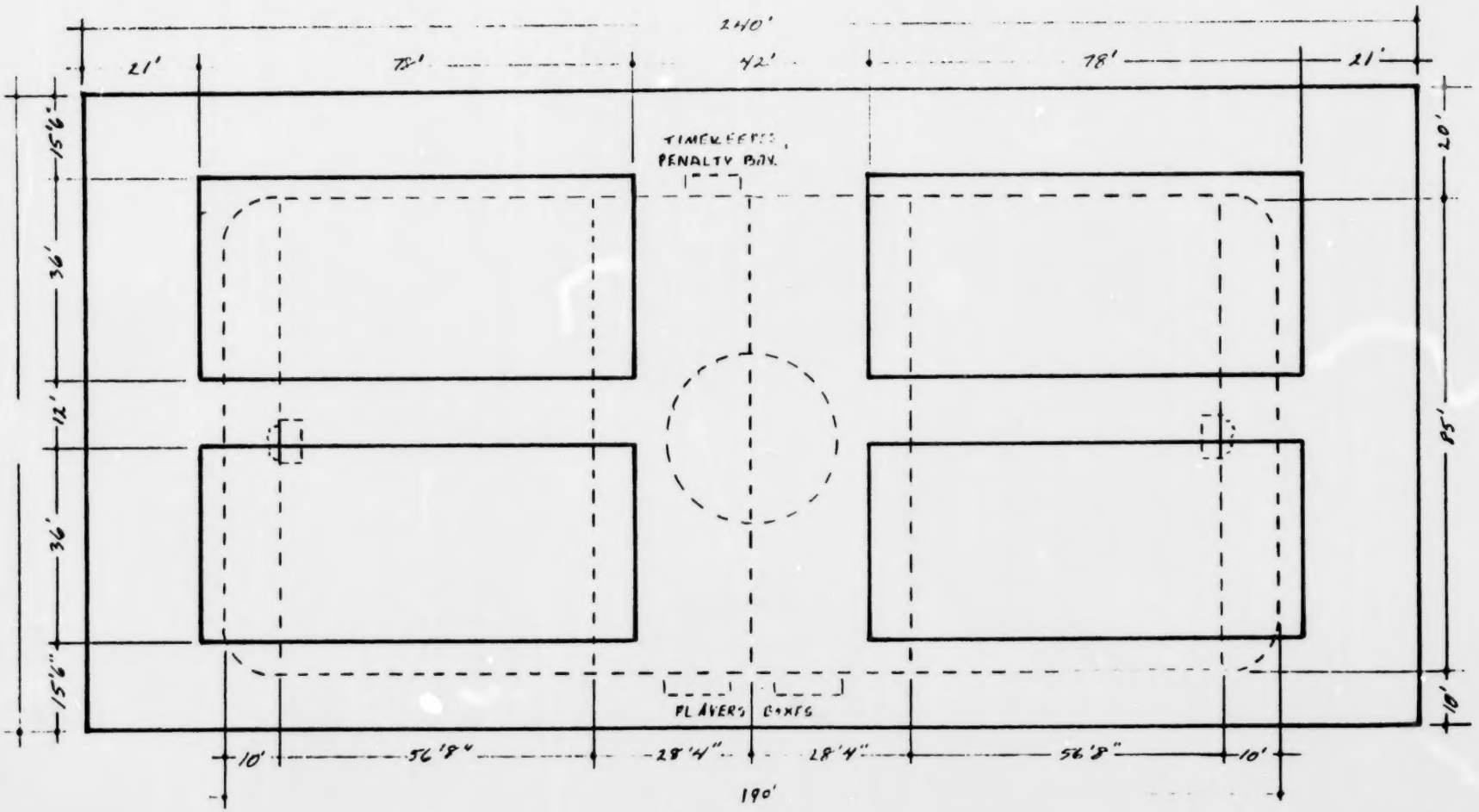
DRAWN MKTB SCALE AS SHOWN DATE JUNE 14/77 FILE NO 43 41/78 C

APPENDIX B

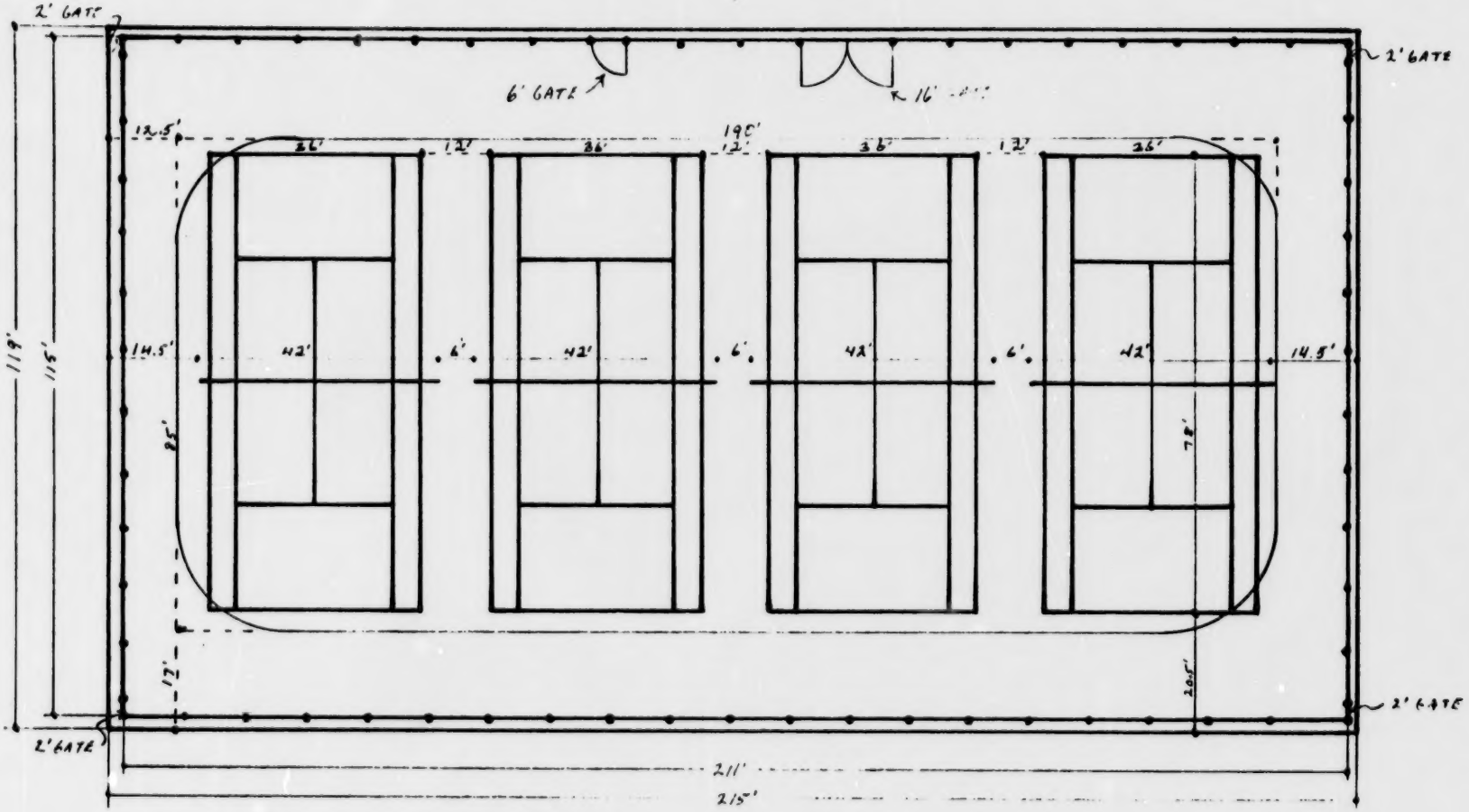
TENNIS COURT/HOCKEY RINK COMBINATIONS

Layout 'A' is generally preferred in that both the tennis courts and the hockey rink can be oriented north-south. Of more importance is the advantage of being able to locate the lighting to the sides of the courts. The disadvantage of alternative 'A' is that a removable fence or net, must be placed at 'centre ice' in order to keep tennis balls from bouncing onto the other courts.

Layout 'B' does not require this removable fence, but has the significant disadvantage of lighting having to be located at the ends of the tennis courts.



4 Tennis Courts and Hockey Rink (Alternative 'A')



4 TENNIS COURTS AND HOCKEY RINK (Alternative 'B')

TENNIS COURT SURFACING - MANUFACTURERS/SUPPLIERS

LAYKOLD COLOR COAT	Chevron Asphalt Ltd. 7404 - 30 Street, S.E. Calgary, Alberta Phone: 279-7229
PLEXIPAVE	California Products Corp. Box 30 Cambridge, Massachusetts 02139
SPORT KOTE	Transcan Industries 1007 - 17 Street, N.E. Calgary, Alberta T2E 4T9 Phone: 262-1361
ACTION TURF	Al. Chroma Incorporated Stevens Pt. Wisconsin 54481
REC TECH	Maintenance Incorporated Box 408 Wooster, Ohio 44691
VYNATEX 23	Maintenance Incorporated Box 408 Wooster, Ohio 44691
DECORALT	Flintkote Company Box 2218 Terminal Annex Los Angeles, California 90041
ACRYLUX	Norfolk Corporation Quincy, Massachusetts 02171

Alberta
RECREATION AND PARKS
Recreation Development Division

OUTDOOR RINKS

1. Selecting the Site

The site selected should have the following characteristics:

a) Water Supply - Unless water is to be trucked to the site, there must be a ready supply of water from a controlled water connection. Flooding with a fire hydrant is costly, wasteful and ineffective when the water is merely poured out at an uncontrolled rate.

b) Power Supply - Lighting is essential if the rink is to be used to its fullest extent. Locate the rink adjacent to a power supply.

c) Shade - If the rink can be located on the shady side of a large building or trees, the shade will help to keep the ice from melting on mild days.

d) Flat - The overall area should be generally flat, with the site for the rink itself being made as flat as possible to facilitate ice making.

The surface for the rink can be either a soil or grass surface, but in either case the ground should be worked up and any large stones or rocks removed.

2. Orientation of the Rink

Where practical, the long axis of a rink should run in a north-south direction. This orientation will minimize the amount of south facing rink boards which reflect the sun's rays onto the ice surface.

3. Dimensions

Required dimensions for a hockey rink can vary from 185' - 200' in length by 85' in width. However, dimensions smaller than this may also be acceptable for local use.

4. Preparation for Flooding

a) Make the rink site as level as possible, eliminate lumps and holes. Cut and clean up all long grass and weeds.

b) Plug all holes and spaces at the base of the rink boards.

c) Most suitable temperatures are -17°C - -7°C.

d) A 2.5 (1 inch) diameter hose equipped with a nozzle capable of producing a fairly course spray is ideal.

5. Ice Making

a) Start at one end of the rink and apply water across the width, covering a strip 1.5m - 2m wide;

b) Progressively work to the opposite end of the rink covering the area 1.5m - 2m wide strips;

c) Repeat this procedure, applying as many coats as may be necessary to build up a good level ice surface. If the temperature is around -17°C, this may be done immediately. If over -12°C, you will probably need to wait until the first flood is properly frozen. This is the quickest and most economical way to make good ice. Less water is required for each flood, no water is wasted, the small amount of water used does not remove any frost from the ground, and slight surface irregularities are easily levelled over.

d) Two important practical points to bear in mind are:

i) Keep the hose nozzle moving, do not allow the water to play in one spot. Inexperienced ice makers have been observed to tie the hose to a stake or allow the hose to lie on the ground on one spot. This is a good way to melt any ice that may be on the site, or to create a good mudhole. This is the lazy man's way of trying to make ice.

ii) Keep the hose behind you and away from the area being flooded. Don't drag the hose over the area being flooded.

6. Maintenance of Ice Surface:

a) The ice surface must be scraped clean of all ice chips, flakes, snow and dirt before flooding;

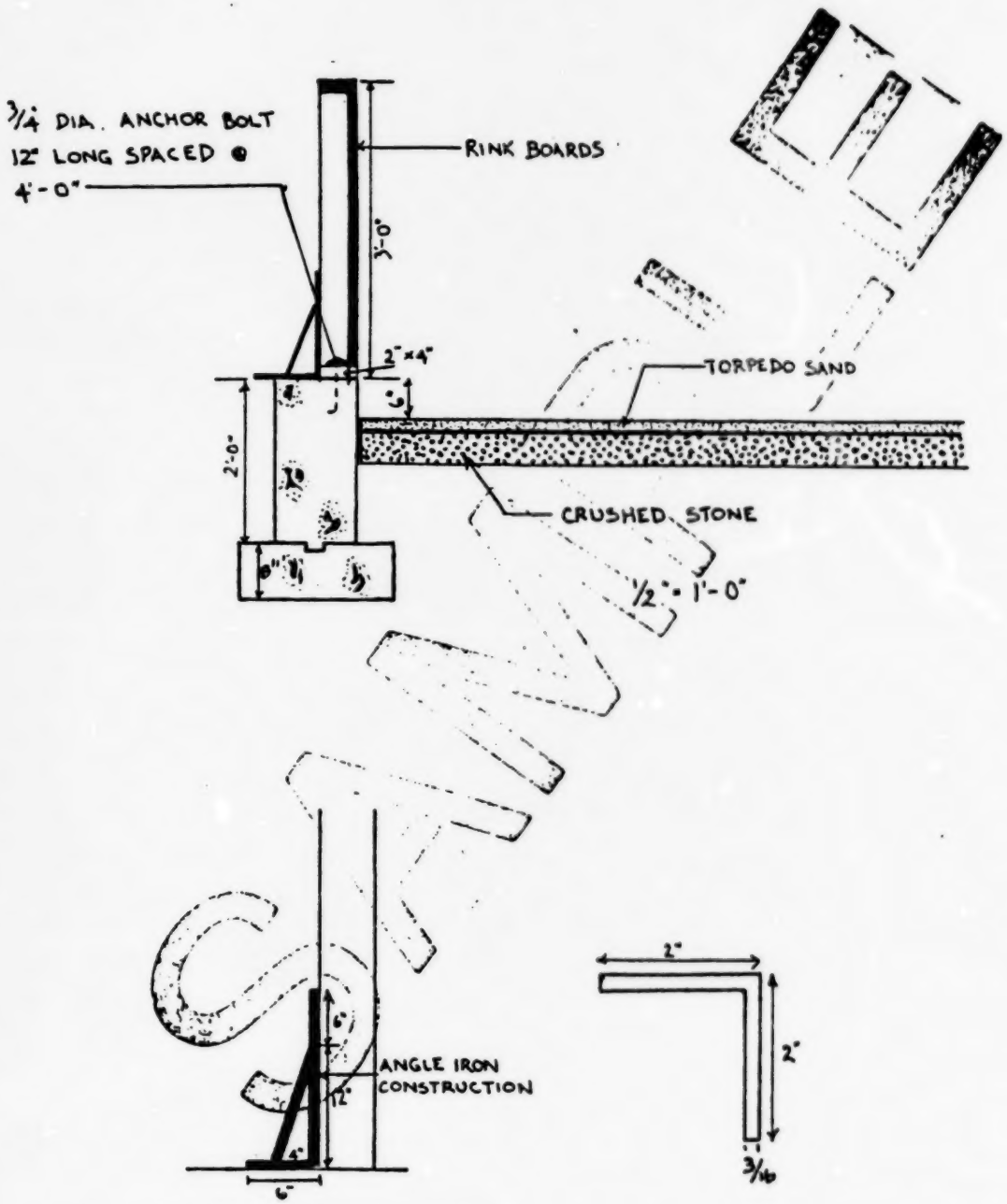
b) First, sweep the ice all around the rink about 30cm - 45cm wide at the base of the boards. Use a good stiff corn broom. This part of the ice is seldom skated on and every precaution must be taken to ensure that it does not build up into a ridge;

c) The rest of the ice surface should be scraped using a steel scraper. Be sure the edge of the scraper is straight;

d) Clear the ice of all scrapings;

e) Take all the hose needed onto the ice and place the nozzle over and outside the rink boards, then turn on the water. The hose should be manually controlled at all times;

f) Use the same flooding technique as described in Ice Making, but be sure to keep the edge of the ice coat wet so that each strip will butt to its neighbour without forming laps and ridges. Do not try to flood too wide a strip. Keep the nozzle moving and work quickly. Generally speaking, the warmer the temperature the wider will be each strip of ice that can be flooded. The ice maker will quickly become experienced in judging the best width, and work speed will depend upon prevailing temperatures.



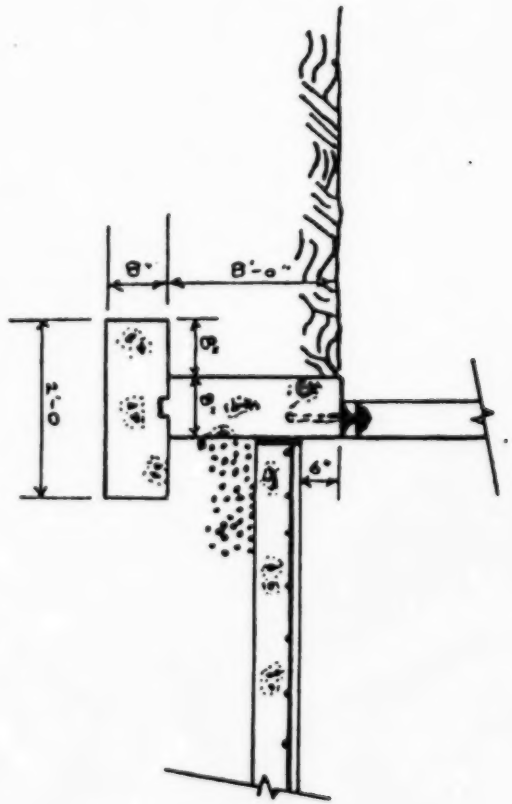
ANCHOR TO MAIN POSTS, CONCRETE BEAM

3/4" = 1'-0"

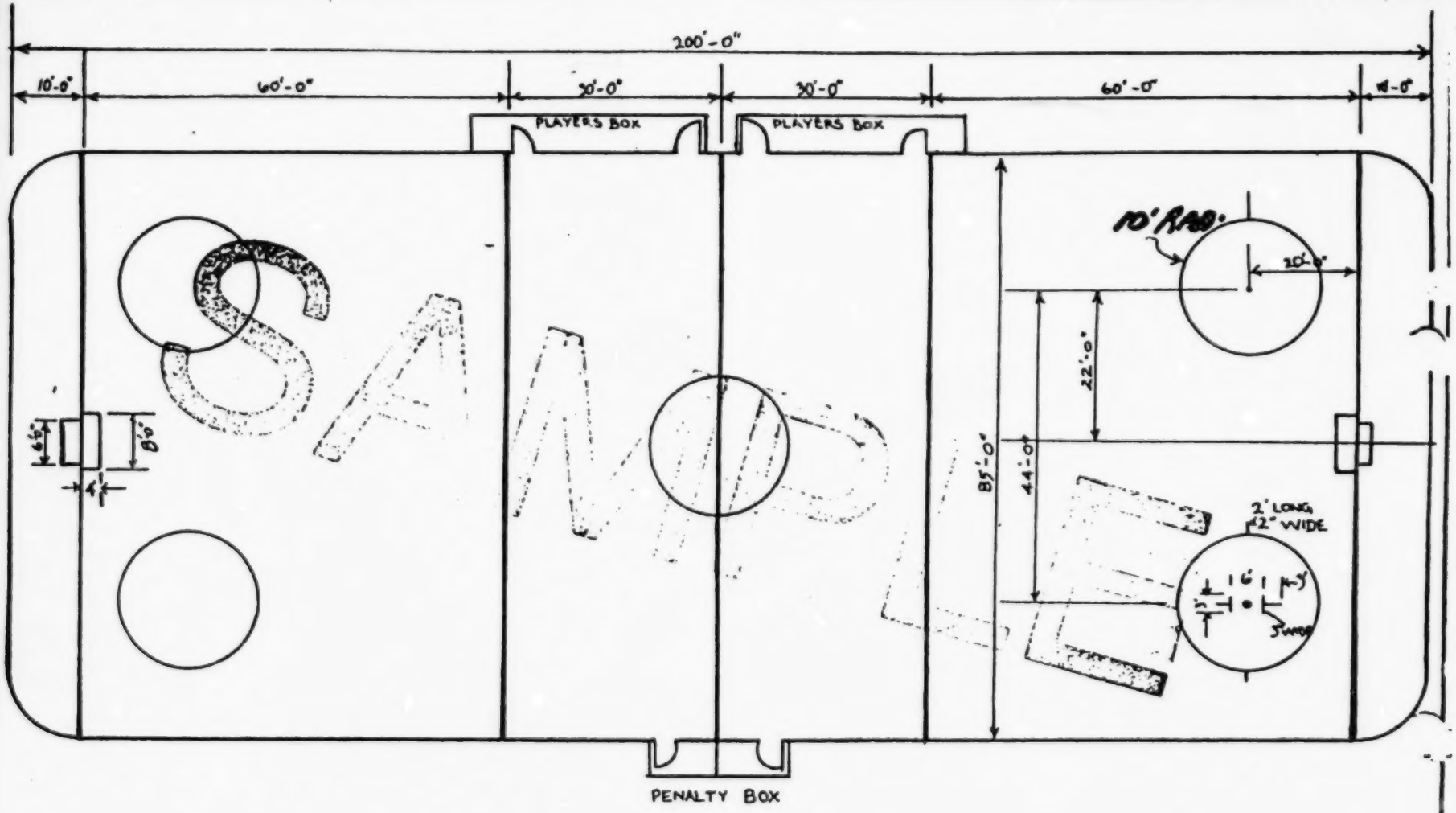
ICE HOCKEY BOARDS
CONCRETE FOOTING DETAIL

571

MANITOBA DEPARTMENT OF FITNESS, RECREATION AND SPORT



MANITOBA DEPARTMENT OF FITNESS, RECREATION AND SPORT	ICE HOCKEY BOARDS CONCRETE FOOTING DETAIL	549

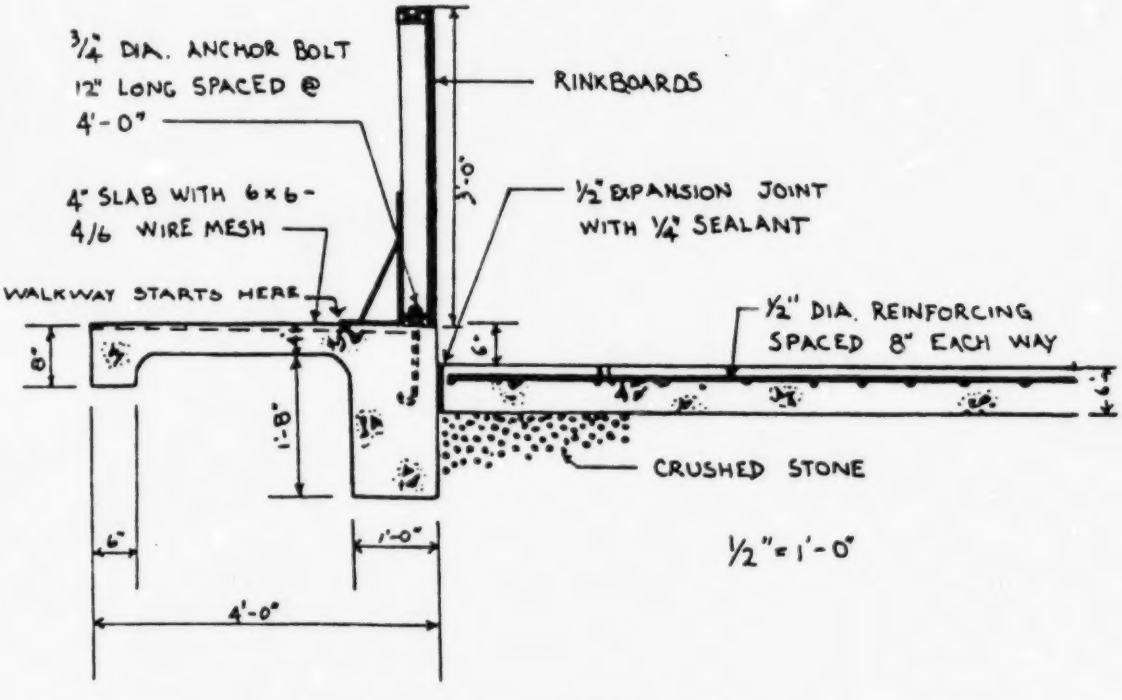


ICE HOCKEY

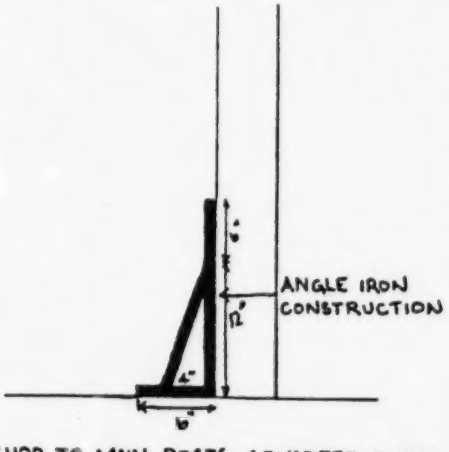
MANITOBA DEPARTMENT OF FITNESS, RECREATION AND SPORT	ICE HOCKEY RING LAYOUT	524

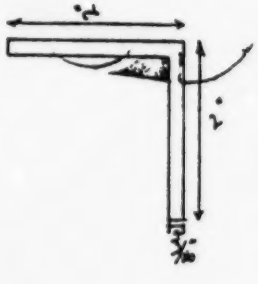
ICE HOCKEY BOARDS
CONCRETE FOOTING DETAIL

MANITOBA DEPARTMENT OF FITNESS, RECREATION AND SPORT



FOOTING DETAIL

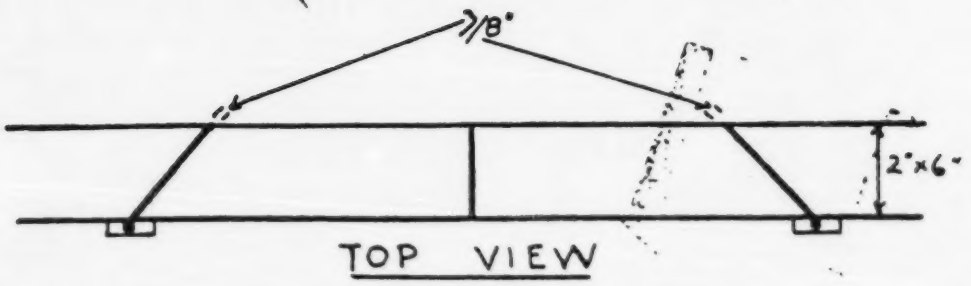




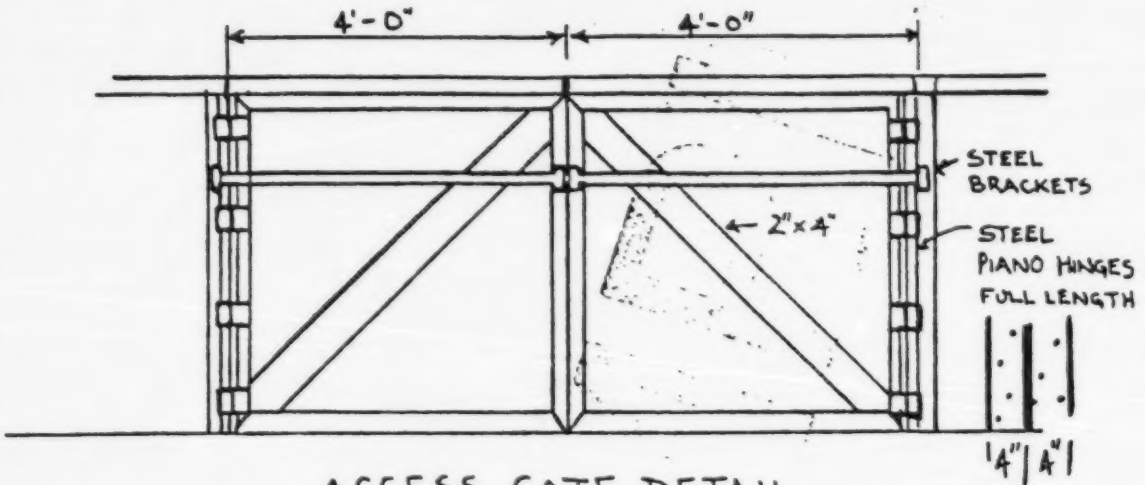
ANCHOR TO MAIN POSTS, CONCRETE FLOOR

3/4" = 1'-0"

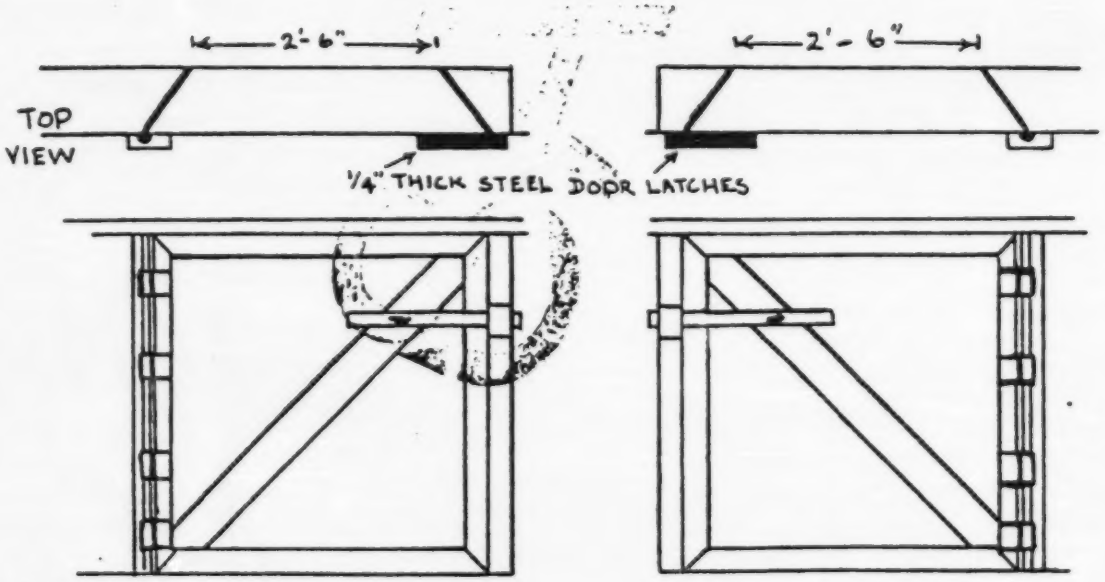
HOCKEY GATE DETAILS



TOP VIEW

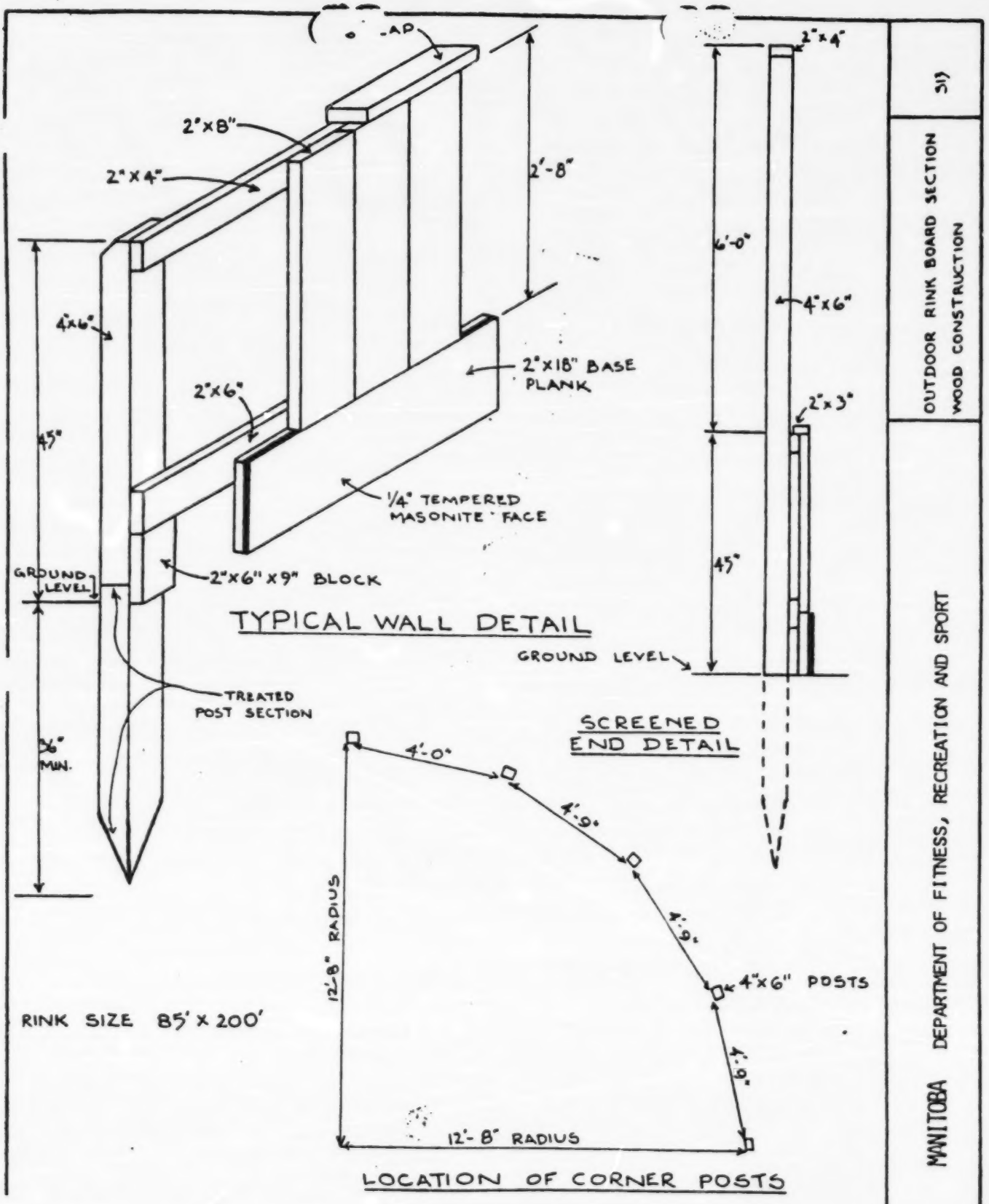


ACCESS GATE DETAIL
FRONT VIEW



INDIVIDUAL GATES

MANITOBA DEPARTMENT OF FITNESS, RECREATION AND SPORT



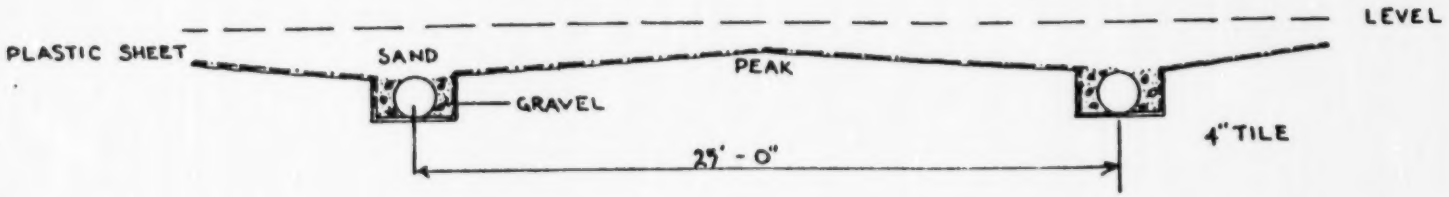
PERMANENT OUTDOOR HOCKEY RINK

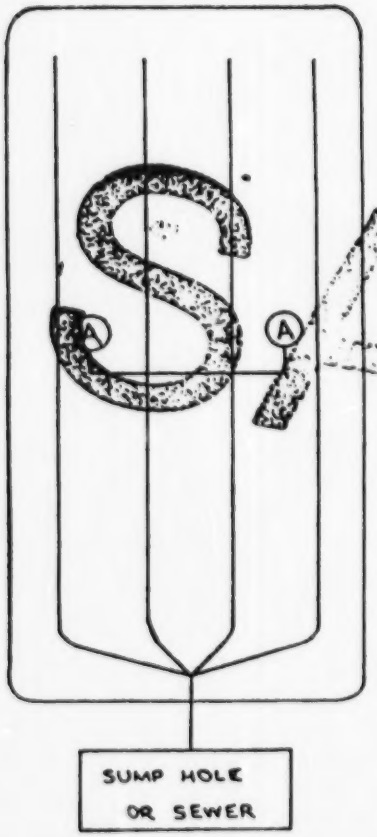
(WOOD CONSTRUCTION)

OUTDOOR RINK BOARD SECTION
WOOD CONSTRUCTION

MANITOBA DEPARTMENT OF FITNESS, RECREATION AND SPORT

513

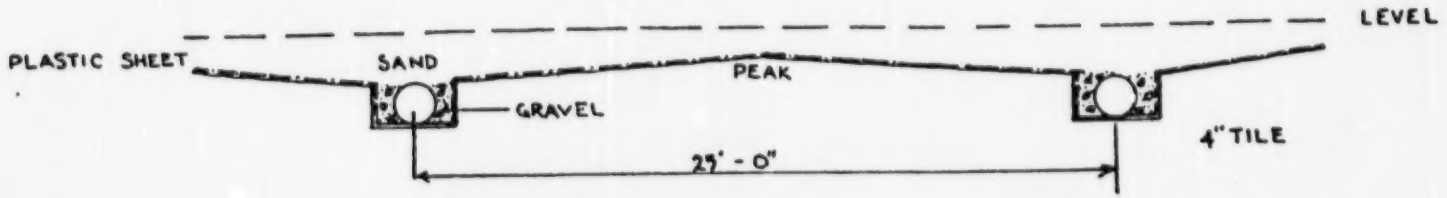




WEEPING TILES TO HELP DRAINAGE IN BASE OF SKATING RINK.

THE SAME TYPE OF SYSTEM COULD BE USED FOR TENNIS COURTS, FOOTBALL FIELDS, ETC.

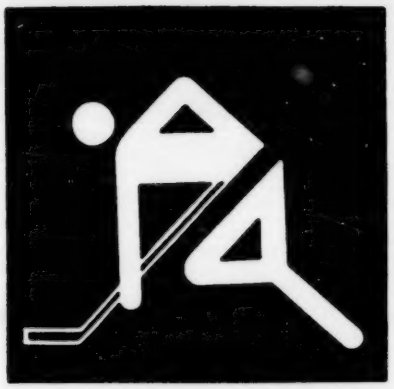
SAMPLE



WEEPING TILES TO HELP DRAINAGE IN BASE OF SKATING RINK.

THE SAME TYPE OF SYSTEM COULD BE USED FOR TENNIS COURTS, FOOTBALL FIELDS, ETC.

SAMPLE



hockey

canada games facility standards

prepared by
Technical Unit for Recreation Facilities
Ontario Ministry of Culture and Recreation

approved by
Canadian Amateur Hockey Association

1977

hockey

hockey

dimensions

RINK
61.0 m x 26.0 m
Radius of corners 8.5 m

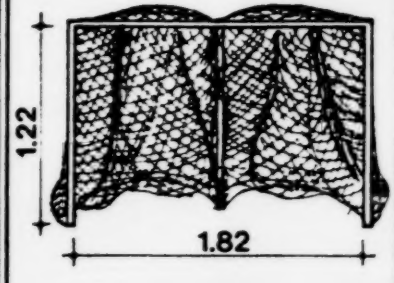
It is recommended that all new rinks be 60.0 m x 30.0 m

MARKINGS
Goal line—3.2 m from each end and parallel to end boards, red lines 5.0 cm wide.
Blue lines—18.2 m from and parallel to goal line, blue lines 30.0 cm wide.
Red line—midway between the goal lines, red line 30.0 cm wide.

BOARDS
Height 1.02 m - 1.22 m above surface.
Base plate—maximum of 30.0 cm high.
Safety shield—The ends of the arena should be protected by shatter proof glass or plastic to a height of 1.53 m and extending 1.8 m beyond the corners.
The remainder of the boards should be safety shielded to a height of at least 0.6 m. (Not a CAHA requirement).

GOAL
Depth 55.9 cm
Posts 1.82 m apart (measured from inside of posts).
Joined by a cross bar 1.22 m above the ice surface.
Red in colour.

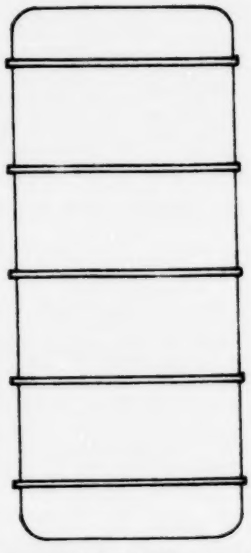
GOAL CREASE
Lines are 0.31 m from the outside of the goal posts extending 1.22 m at right angles to the goal line. These two lines are joined by another line parallel to the goal line.
Width of line 5.0 cm
Colour—red.



surface

The floor below the ice should be polished concrete, terazzo or traprock. When preparing the ice, use of a water soluble white paint keeps the ice from appearing dingy and aids in the lighting of the rink. The temperature of the ice should be −8°C to −9°C to start. If TV cameras and large crowds are present, it should be lowered to about −13°C. The ice should be no more than 2.4 cm thick. The boards should be of wood or plastic.
(Not a CAHA requirement).

hockey



suggested lighting layout of semi-direct fluorescent luminaires

illumination

The lighting should be above the line of the spectators and such that there are no shadows from the boards or nets. There should be an equal amount of light on the total ice surface. The lighting equipment should be linear and of high output. It should be constructed entirely of aluminum. Lighting should be located approximately 6.0 m above the ice surface and should have an indirect factor of 50%. The lighting system should also contain lens shielding to reduce glare and control distribution throughout the arena. The light intensity, measured 1.2 m above the surface should be 810 lx for play and 1080 lx if play is televised.
(Not a CAHA requirement).

equipment

An electric scoreboard with timing and scoring capabilities.

A stopwatch for official timing.

A public address system for game related announcements.

24 frozen hockey pucks per site per game.

ancillary facilities

4 team dressing rooms, 35.0 m^2

1 first aid/training room at each arena.

1 dressing room for officials at each arena.

venue requirements

Minimum 2 hockey arenas with support facilities as above.

Maximum 3 hockey arenas with support facilities.

Based on A and B round robin competition, winners and runners up advancing to play for medals, six days of competition.

OUTDOOR RINK INFO

Outdoor Rink on Grass?

I called Scott Kenny of Edmonton Parks and Recreation (428-3598).

- The grass gets burned in the spring. With the sun at a high angle - the ice rink becomes a large magnifying glass. To prevent this spread out Milorgnite (organic fertilizer/linar excrement) on the rink and this cuts down on the magnifying glass effect and fertilizes the grass.

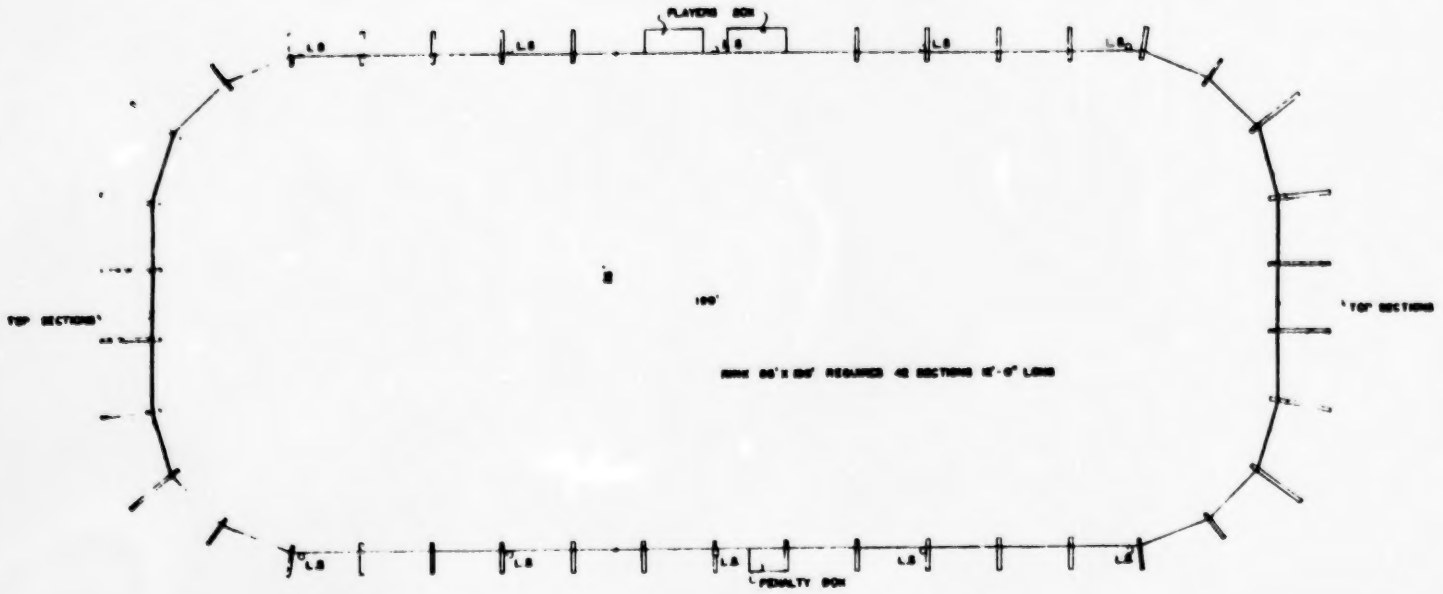
- Best if there is a long cold spell (3 - 4 weeks of 40 below) the grass will die (ice has no insulation value).

- Putting an ice rink on a residential lawn is risky. We would not recommend it very much - most people have problems with it i.e. dead grass.

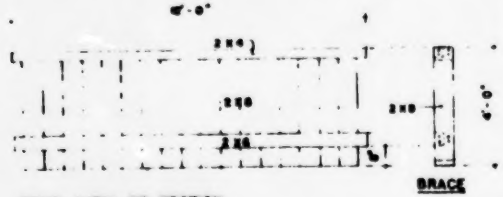
- If you want to you may wait until there is at least 6" of snow on the ground and then build the rink on top of the snow.

- Use fine mist of water first then gradually increase the water to a spray - This is done so the snow is not compacted on the grass.

DN



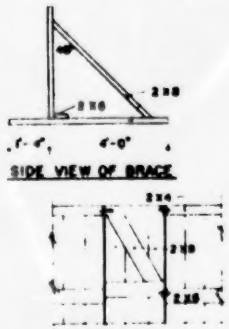
PLAN OF RINK
SCALE 1" = 40'



REAR VIEW OF SECTION

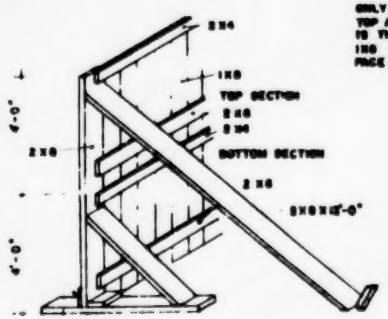
PLAN OF SECTION

DETAL PLANS & ELEVATIONS
SCALE 1/2" = 1'-0"



SIDE VIEW OF BRACE

REAR VIEW OF GATE



ONLY DIFFERENCE BETWEEN TOP AND BOTTOM SECTIONS IS THE SUBSTITUTION OF 1X8 FOR 2X8 FOR FACE BOARDS

1X8 KICK PLATE TO BE FASTENED WITH SCREWS

VIEW SHOWING HIGH BOARDS
SCALE 1/2" = 1'-0"

LEGEND

NOTES

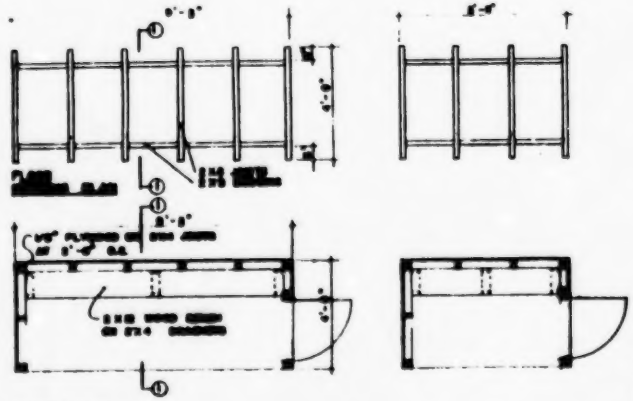
Large size Plans of these details available from This office

REVISIONS
DATE OCTOBER 10 1971 SCALE AS NOTED

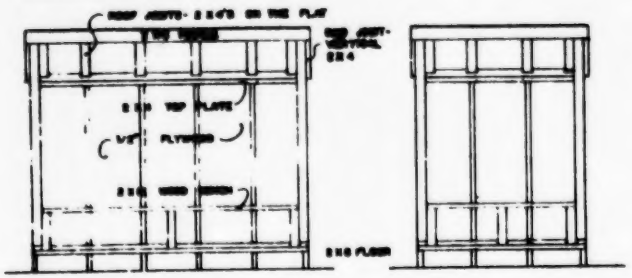
EDMONTON PARKS & RECREATION

HOCKEY RINK

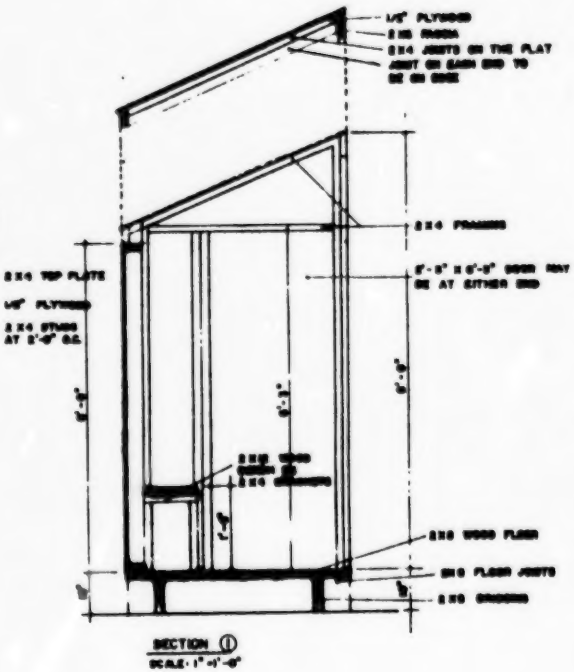
SD
25



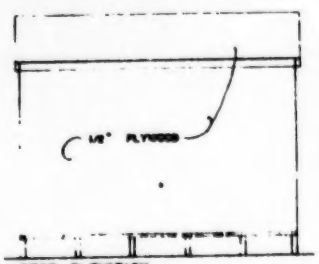
FLOOR PLAN



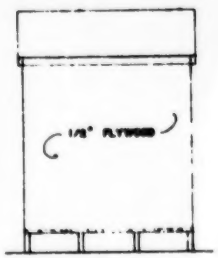
FRONT ELEVATION



SECTION ①



REAR ELEVATION



PENALTY BOX

END ELEVATION

LEGEND

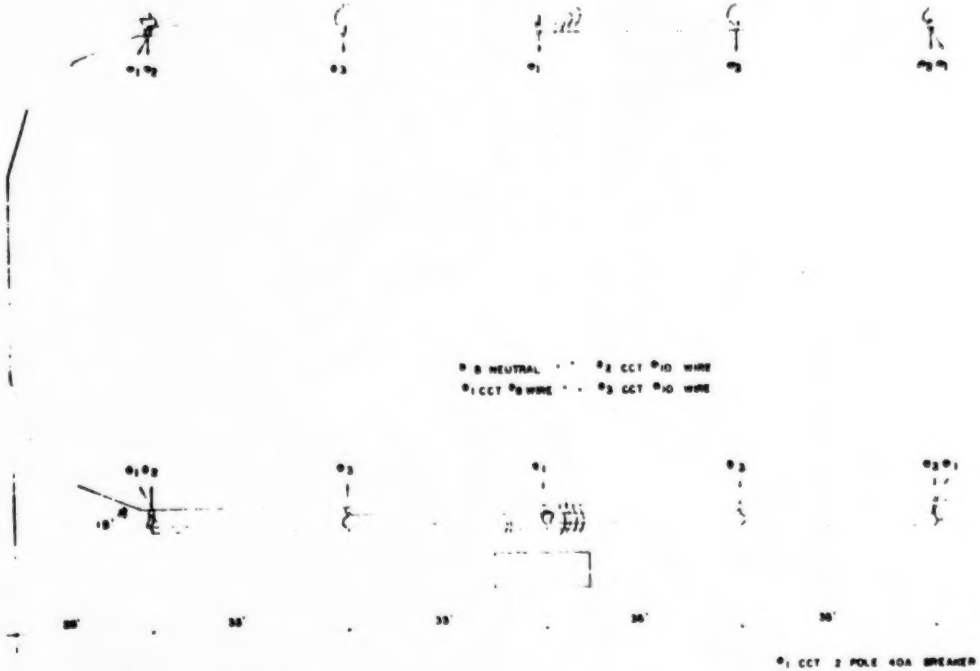
NOTES:

REVISIONS:

DATE: OCTOBER 8 1971 SCALE: AS NOTED

PENALTY & PLAYER BOX FOR HOCKEY

SD



STANDARD FLOODLIGHT LAYOUT USING STEEL POLES & UNDERGROUND WIRING

REFERENCE EDMONTON POWER DRAWING N° L-72-8

LEGEND

NOTES

LAYOUT OF FLOODLIGHTS
TOTAL - 14 000 WATTS
MOUNTING HEIGHT
FLOODLIGHTS TO BE MOUNTED 55' ABOVE ICE WHEN POLES NOT ATTACHED TO BOARDS USE 30' POLES
FLOODLIGHTS
1000 W OPEN AREA WIDE BEAM
LAMPS
1000 W - 130V - PS - 52
FLOODLIGHTS SHOWN STRAIGHT OUT FROM POLE TO BE FOCUSED 0° VERTICAL - 0° HORIZONTAL
FLOODLIGHTS SHOWN POINTING TOWARDS GOALS TO BE FOCUSED 0° VERTICAL - 25° HORIZONTAL
IF BRACES USED ON RINK BOARDS SEE DRAWING SD 210 FOR RINK LIGHT POLE LOCATIONS

MARCH 11, 1974 REVISED NOTES AJS
AUGUST 13, 1973 REVISED NOTES PDS
REVISIONS
DATE OCTOBER 15 1971 SCALE 1/16 CHD

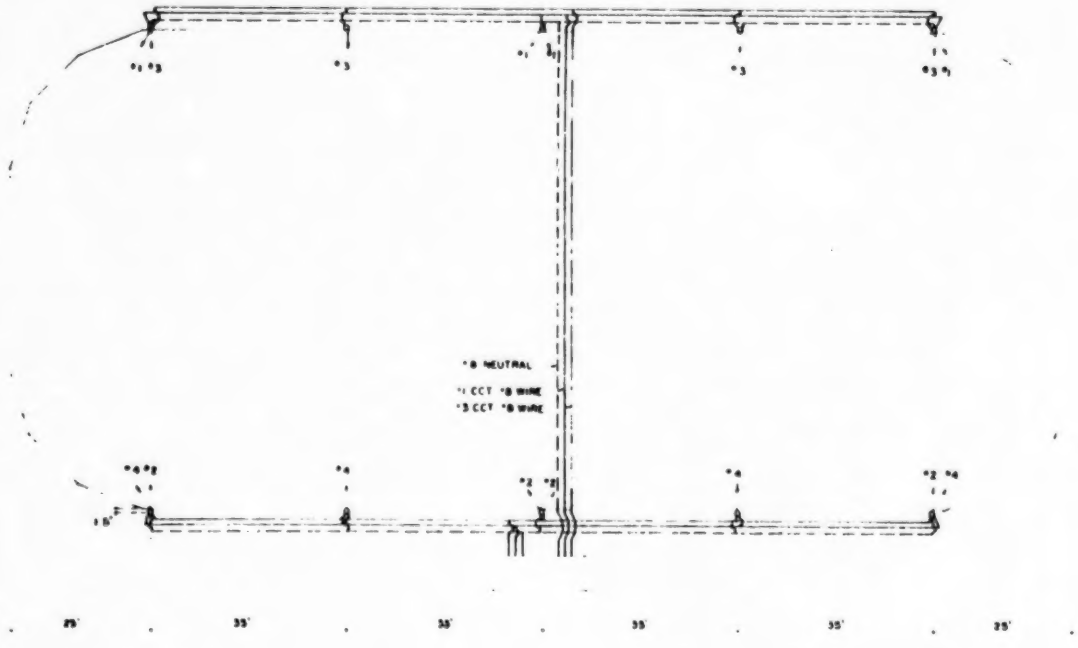
EDMONTON PARKS & RECREATION

RINK LIGHTING

(INCANDESCENT LIGHTING)

SD 217

LAYOUT OF FLOODLIGHTS
TOTAL 16,000 WATTS
MOUNTING HEIGHT
FLOODLIGHTS TO BE MOUNTED 25' ABOVE ICE
WHEN POLES NOT ATTACHED TO BOARDS
USE 30' POLES
FLOODLIGHTS
1500 W OPEN AREA WIDE BEAM
LAMPS
1000 W - 120 V - PS - 52
FLOODLIGHTS SHOWN STRAIGHT OUT FROM POLE
TO BE FOCUSED 0° VERTICAL - 0° HORIZONTAL
FLOODLIGHTS SHOWN POINTING TOWARDS GOALS
TO BE FOCUSED 0° VERTICAL - 25° HORIZONTAL
IF BRACES USED ON Rink BOARDS SEE Drawings
SD 215 FOR Rink LIGHT POLE LOCATIONS



STANDARD FLOODLIGHT LAYOUT USING STEEL POLES
UNDERGROUND WIRING OR OVERHEAD WIRING

*1 CCT - 1 POLE 40A BREAKER
*2 CCT - 1 POLE 40A BREAKER
*3 CCT - 1 POLE 40A BREAKER
*4 CCT - 1 POLE 40A BREAKER

Revisions CKD

Edmonton Parks and Recreation

RINK LIGHTING

METAL HALIDE LIGHTING

Drawn	Head of Design
P DYTNIK	
Design	Director
Checked	Superintendent

Date	Drawing No
JUNE 2, 1995	SD
Scale	217 A
NOT TO SCALE	
File No.	

THE FOCUS SERIES

Information designed to help individuals and groups bring their visions for outdoor recreational facilities into focus is available at no charge.

1: PLAY SPACE PLANNING

2: PLAY SPACE CONSTRUCTION

3: PLAY SPACE MAINTENANCE

4: PLAY SPACE SAFETY

5: PLAY SPACE IDEAS

6: RECREATION TRAILS

7: TENNIS COURTS/OUTDOOR RINKS

8: DOWNHILL SKI AREA PLANNING AND OPERATION

9: CROSS COUNTRY SKI TRAILS

10: BALL DIAMONDS

For copies, contact our regional recreation office or:

Outdoor Recreation Facilities Section
Community Recreation Branch
Alberta Recreation and Parks
9th Floor, Standard Life Centre
10405 Jasper Avenue
Edmonton, Alberta
T5J 3N4

Telephone: 427-4471